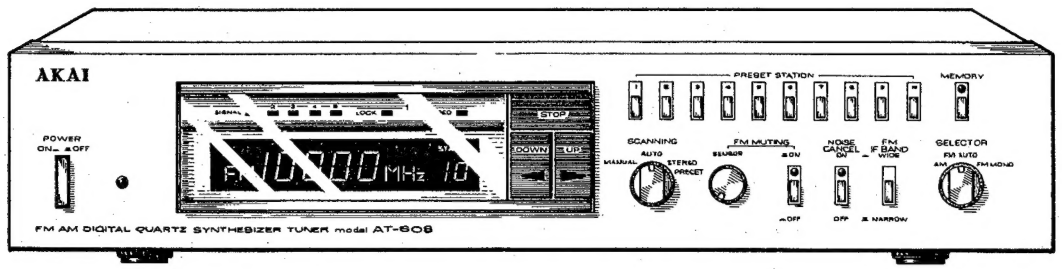
AT-S08

AKAI SERVICE MANUAL



FM AM DIGITAL QUARTZ SYNTHESIZER TUNER

MODEL **AT-S08**

FM AM DIGITAL QUARTZ SYNTHESIZER TUNER

MODEL AT-S08

ALSO APPLICABLE TO BLACK PANEL MODEL

SECTION 1	SERVICE MANUAL	3
SECTION 2	PARTS LIST	29
SECTION 3	SCHEMATIC DIAGRAM	40

SECTION 1

SERVICE MANUAL

TABLE OF CONTENTS

I. TECHNICAL DATA 4
II. DISMANTLING OF UNIT 5
III. CONTROLS 6
IV. PRINCIPAL PARTS LOCATION 7
V. VOLTAGE CONVERSION 8
VI. CIRCUIT OPERATION 9
1. OUTLINE 9
2. BLOCK DIAGRAM 10
3. PLL SYNTHESIZER 11
VII. ADJUSTMENT 12
1. POWER SUPPLY ADJUSTMENT 15
2. AM SECTION ADJUSTMENT 15
3. FM SECTION ADJUSTMENT 16
VIII. CLASSIFICATION OF VARIOUS P.C BOARDS 18
1. P.C BOARD TITLES AND IDENTIFICATION NUMBERS 18
2. COMPOSITION OF VARIOUS P.C BOARDS 19

For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.

I. TECHNICAL DATA

FM TUNER SECTION

FREQUENCY RANGE		87.5 MHz to 108 MHz
SENSITIVITY (IHF)		0.9 μV/75 ohms
CAPTURE RATIO		1 dB
SELECTIVITY (IHF)		More than 100 dB
IMAGE REJECTION		More than 110 dB (98 MHz)
IF REJECTION		More than 110 dB (98 MHz)
SPURIOUS REJECTION		More than 110 dB (98 MHz)
AM SUPPRESSION		60 dB
SIGNAL TO NOISE RATIO		75 dB
HARMONIC DISTORTION	MONO	Less than 0.08% wide/0.2% narrow (100% modulation)
	STEREO	Less than 0.1% wide/0.3% narrow (100% modulation)
TUNING INDICATOR	SIGNAL	5 points LED
	LOCK	LED
MUTING		Level Control (10 μV to 100 μV)/Switchable to ON-OFF
STEREO SEPARATION		More than 50 dB (1 kHz)
SUB CARRIER SUPPRESSION		More than 65 dB
NOISE FILTER		Noise Canceller
OUTPUT VOLTAGE		Controllable from 0 V to 1.5 V (Variable (Rear)) or 450 mV (Fixed). (100% modulation)
ANTENNA INPUT IMPEDANCE		75 ohms unbalanced

AM TUNER SECTION

FREQUENCY RANGE	513 kHz to 1,647 kHz (520 kHz to 1,610 kHz for USA and Canada).
SENSITIVITY (IHF)	6 μV (external antenna)
SELECTIVITY (IHF)	More than 35 dB
IMAGE REJECTION	More than 70 dB (1,000 kHz)
IF REJECTION	More than 65 dB
SIGNAL TO NOISE RATIO	More than 55 dB
OUTPUT VOLTAGE	Controllable from 0 mV to 500 mV (Fixed) 150 mV (30% modulation)

MISCELLANEOUS

SEMICONDUCTORS	Transistors: 45, Diodes: 110, FETs: 9, ICs: 32
POWER REQUIREMENTS	120 V, 60 Hz for USA and Canada 220V, 50 Hz for Europe except UK 240 V, 50 Hz for UK and Australia 110/220/240 V, 50/60 internally Switchable for the other countries
POWER CONSUMPTION	20 W
DIMENSIONS	440 (W) x 90 (H) x 447 (D) mm (17.3 x 3.5 x 17.4) inches
WEIGHT	7.7 kg (3.5 lbs)

STANDARD ACCESSORIES

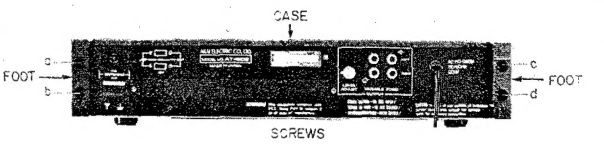
FM DI-POLE ANTENNA	1
FM EXTERNAL ANTENNA PLUG	1
AM EXTERNAL ANTENNA PLUG	1
AM ANTENNA	1
CONNECTION CORDS	1 set
OPERATOR'S MANUAL	1

* For improvement purposes, specifications and design are subject to change without notice.

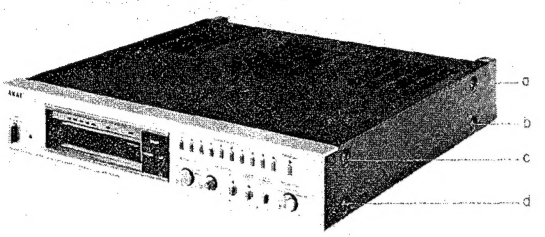
II. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.

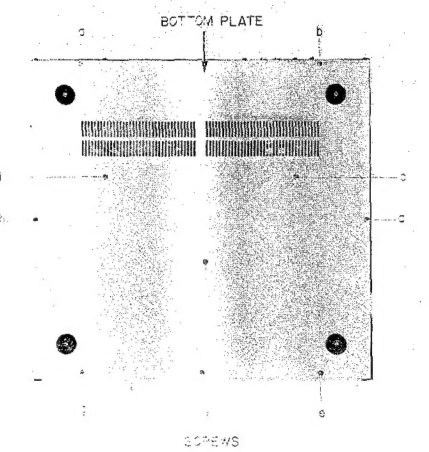
3



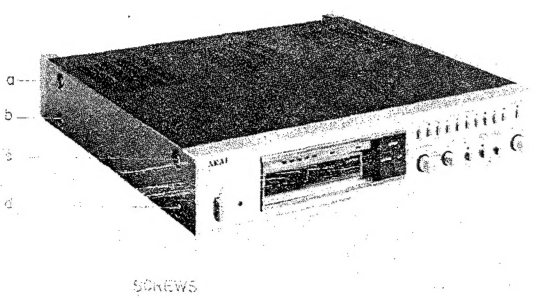
1



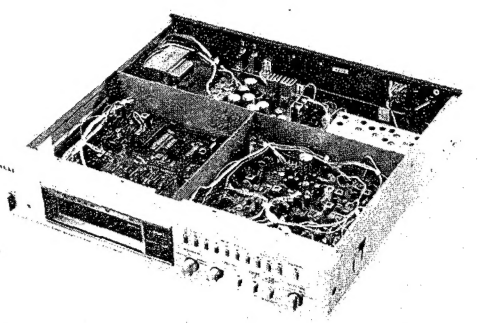
4



2



5



III. CONTROLS

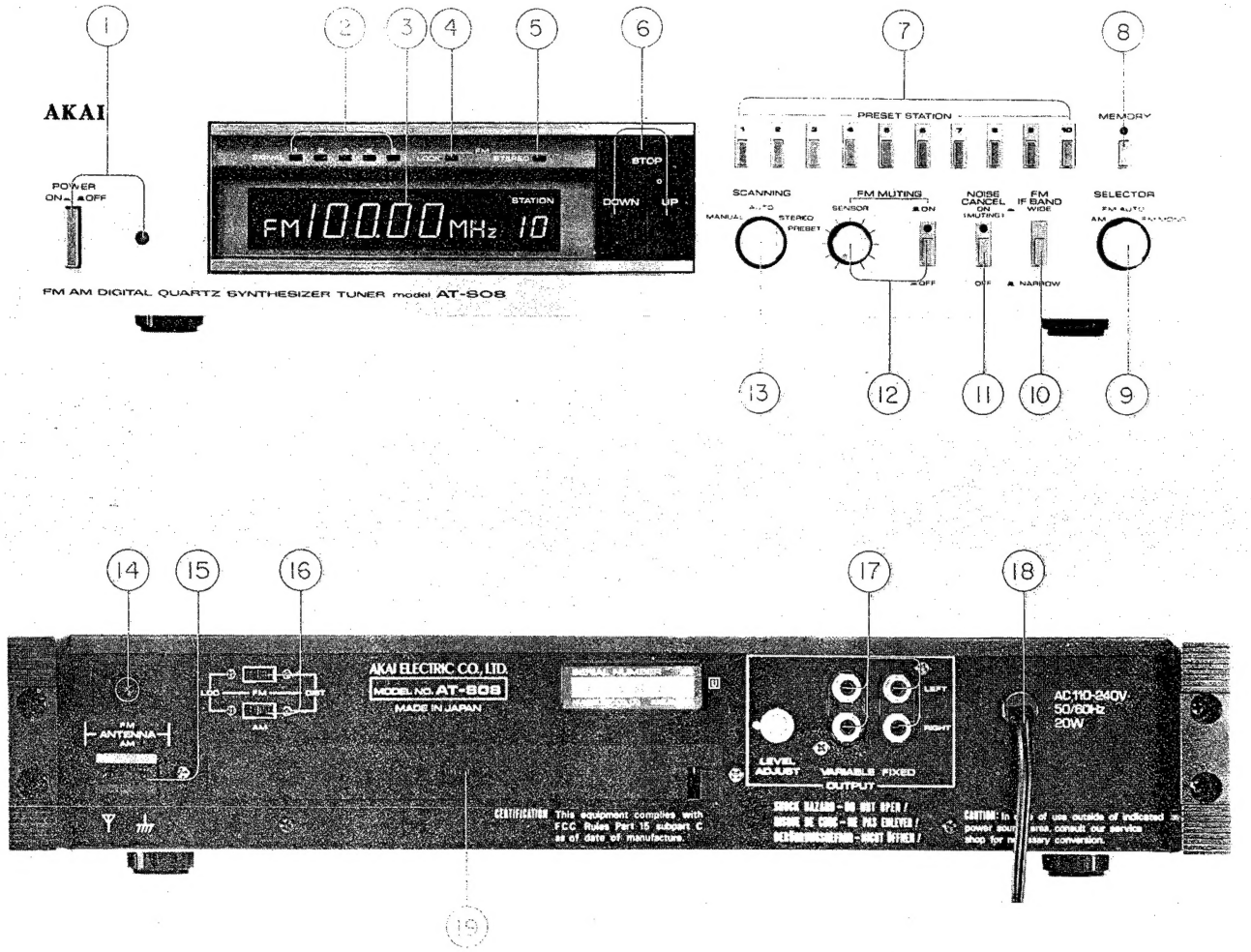


Fig. 3-1

1. POWER SWITCH AND INDICATOR
2. LED SIGNAL STRENGTH INDICATOR
3. DIGITAL FL DISPLAY
4. LOCK INDICATOR
5. STEREO INDICATOR
6. TUNING SECTION
7. PRESET STATIONS
8. MEMORY AND MEMORY INDICATOR
9. MODE SELECTOR
10. FM IF BAND SELECTORS
11. NOISE CANCEL SWITCH
12. FM MUTING SWITCH AND SENSOR
13. SCANNING
14. FM ANTENNA JACKS
15. AM EXTERNAL ANTENNA JACKS
16. FM AND AM ANTENNA SWITCHES
17. OUTPUT
18. AC POWER CORD (AC Inlet for some countries)
19. BATTERY BOX

IV. PRINCIPAL PARTS LOCATION

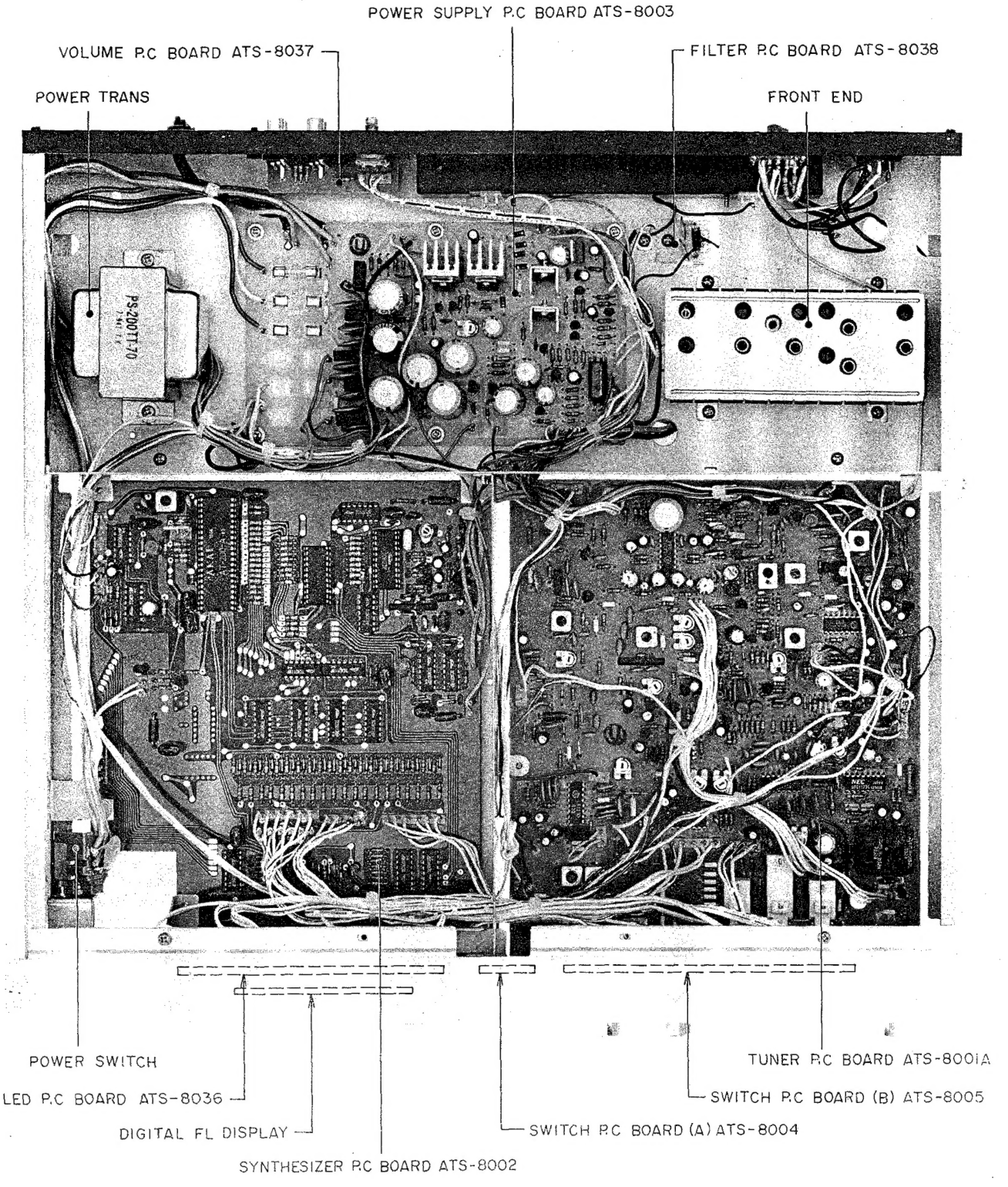


Fig. 4-1 Top View

V. VOLTAGE CONVERSION

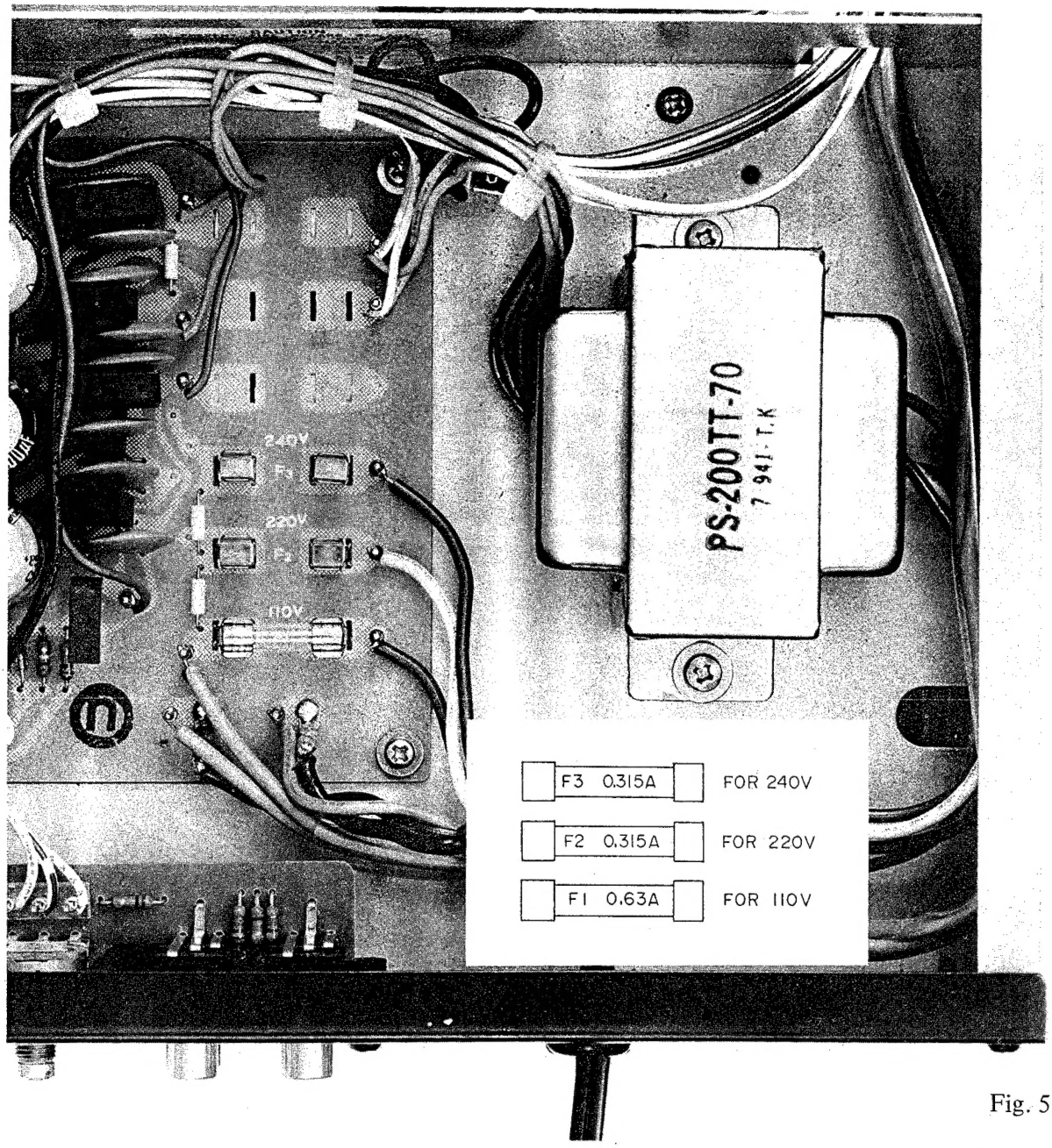


Fig. 5-1

Models for Canada, USA, Europe, UK and Australia are not equipped with this facility.

Each machine is preset at the factory according to destination but some machines can be set to 110V, 220V or 240V as required.

If voltage change is necessary, this can be accomplished as follows.

1) Disconnect AC Power Cord.
2) Loosen holding screws and remove upper case. (Refer to Section 2.)
3) Remove existing line voltage fuse and insert required line voltage fuse in proper fuse holder, explicitly following instructions printed inside the tuner near the line voltage fuses.

VI. CIRCUIT OPERATION

1. OUTLINE

The AT-S08 is a synthesizer AM/FM tuner with a micro-processor and with the power switch out, uses the touch switch for all front panel operation.

Different from existing tuners in that there is no mechanical varicon, there is no longer the cumbersome turning of the tuning dial by hand.

Furthermore, by pressing in the batteries (1.5V x 3) in the Rear Panel, it can back up the memory of each mode and when the power source is cut off and switched on again each mode will have retained the memory that was there before the power source was cut off. Even without the batteries several hours of back up memory are possible due to the Electric Condenser's power supply circuit.

There are various AT-S08 models for USA, Canada European countries etc. so the important differences are outlined below.

	U.S.A., Canada	Europe
AM Frequency Range	520 kHz ~ 1,610 kHz	513 kHz ~ 1,647 kHz
AM Step Frequency	10 kHz	9 kHz
AM IF Frequency	460 kHz	459 kHz
FM Frequency Range	87.5 MHz ~ 108 MHz	87.5 MHz ~ 108 MHz
FM Step Frequency	100 kHz	50 kHz
De-emphasis	75 μsec	50 μsec

2. BLOCK DIAGRAM

1) FM Block Diagram

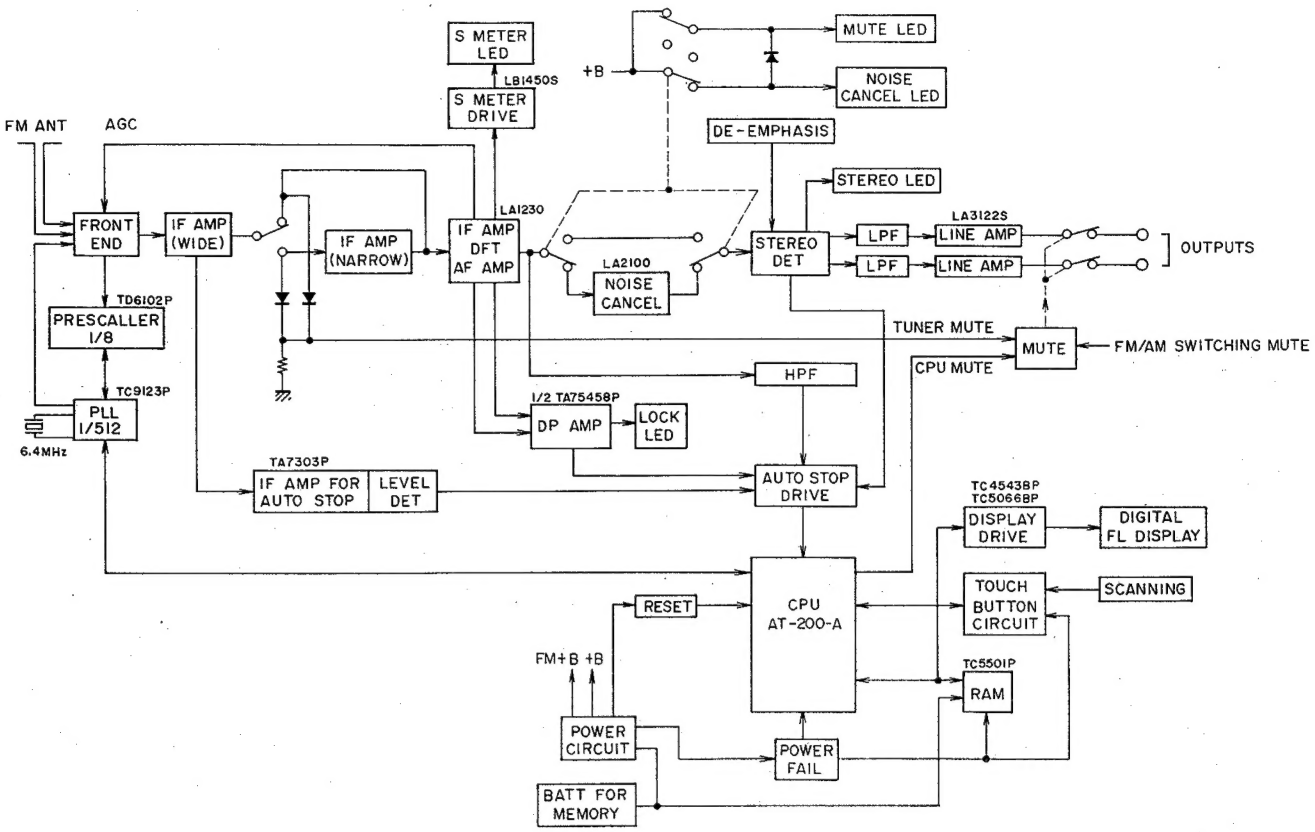


Fig. 6-1

2) AM Block Diagram

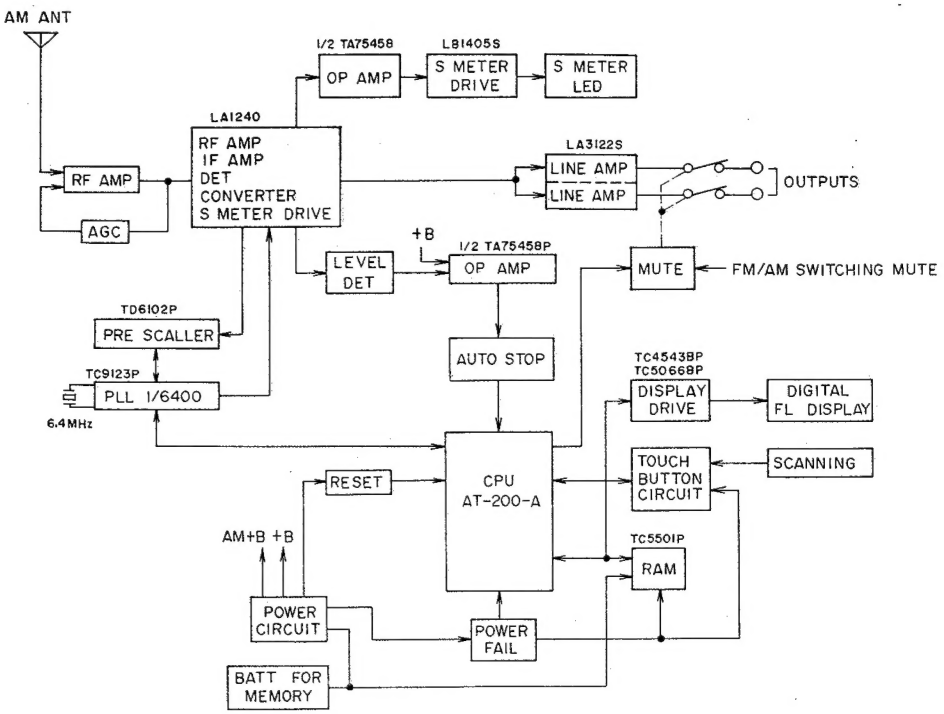


Fig. 6-2

3. PLL SYNTHESIZER

1) FM

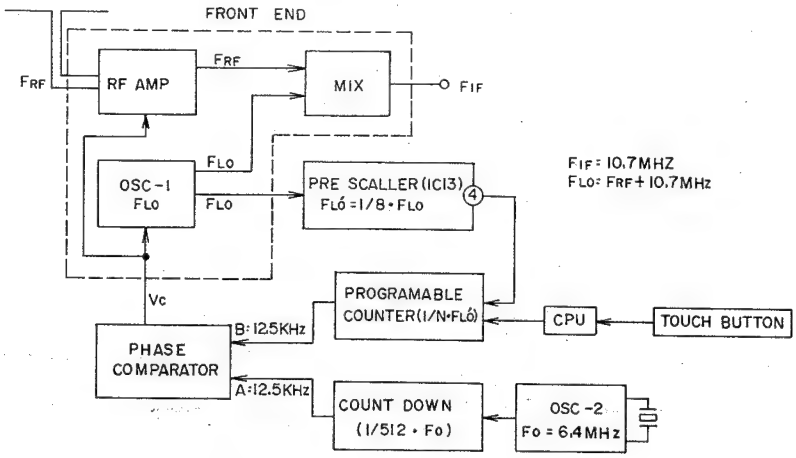


Fig. 6-3 PLL Synthesizer Block Diagram (FM)

Now in Fig. 6-3 is an explanation of when FM 98 MHz broadcast is received. First, when the desired broadcast station (98 MHz in this case) is designated by the Touch Sensor, the countdown ratio N of the Programmable Counter is established at 1084 (at 98 MHz). In the input A of the phase comparator a standard signal 12.5 kHz made by OSC-2 is added. Up to the phase comparator's input comparison signal B reaching 12.5 kHz against this standard signal A the phase comparator's output voltage VC changes and it also changes until the frequency has the oscillation frequency FLO of OSC-1 (in this case 108.7 MHz).

In other words, if the countdown ratio N of the Programmable Counter is 1084, at the point when comparison signal of the phase comparator becomes 12.5 kHz, the frequency FLO of the OSC-1 is 108.7 MHz.

Therefore the FM IF frequency is 10.7 MHz = 108.7 MHz – 98 MHz. Always at the point where the IF frequency becomes 10.7 MHz, the OSC-1 frequency changes by establishing the countdown ratio N of the Programmable Counter and is locked on.

2) AM

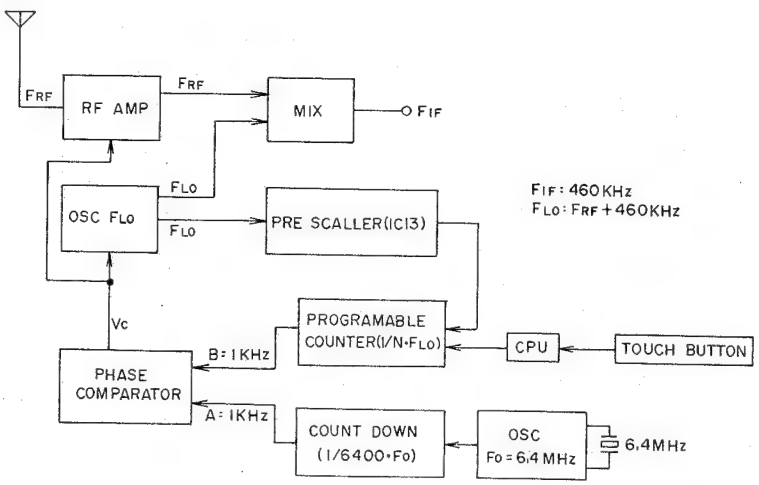


Fig. 6-4 PLL Synthesizer Block Diagram (AM)

The operation of the AM's PLL synthesizer's operation is practically the same as for FM. The difference is that because AM has a low frequency compared with FM, the pre-scaler's countdown ratio is 1/1 and the countdown is 1/6450 and the standard frequency is 1 kHz.

For example, when receiving an AM broadcast of 900 kHz,

F_{IF} = 950 kHz + 460 kHz = 1360 kHz

Therefore the countdown ratio N of the Programmable Counter should be 1360. In other words, when selecting a 950 kHz broadcast station with the Touch Sensor by CPU the countdown ratio of the Programmable Counter become 1/1360 and the phase comparator's output VC changes and when the local oscillator frequency FLO becomes 1360 kHz it locks on.

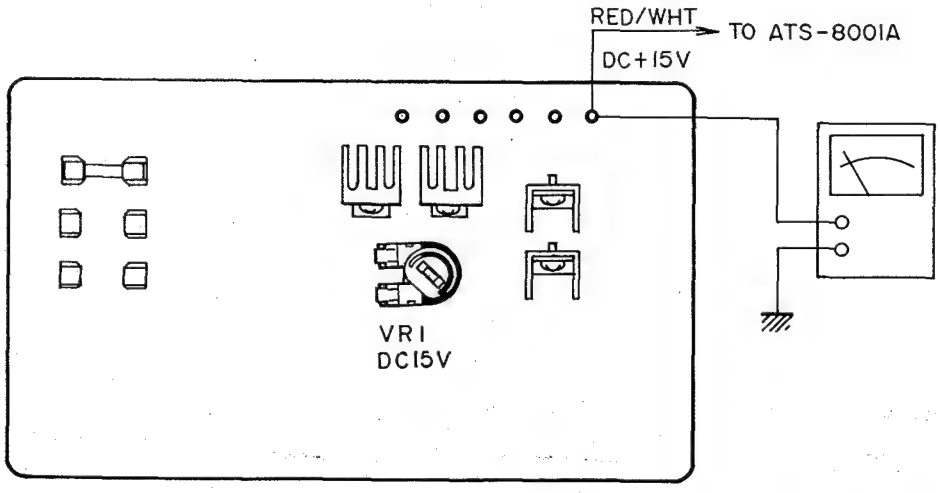
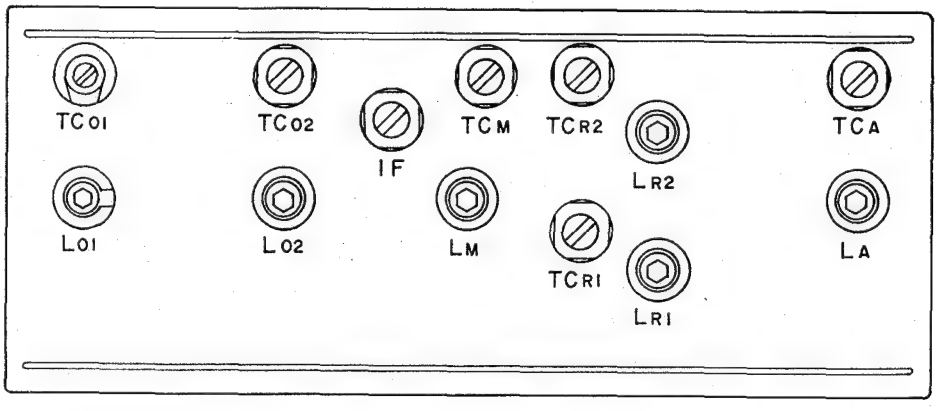


Fig. 7-1 Power Supply P.C Board



IF : DISTORTION
LA, LR1, LR2, LM, L02 : LOW FREQUENCY SENSITIVITY
TCA, TCR1, TCR2, TCM, TC02 : HIGH FREQUENCY SENSITIVITY
TC01, L01 : DO NOT TOUCH (ADJUSTED BY FACTORY)

Fig. 7-2 Front End

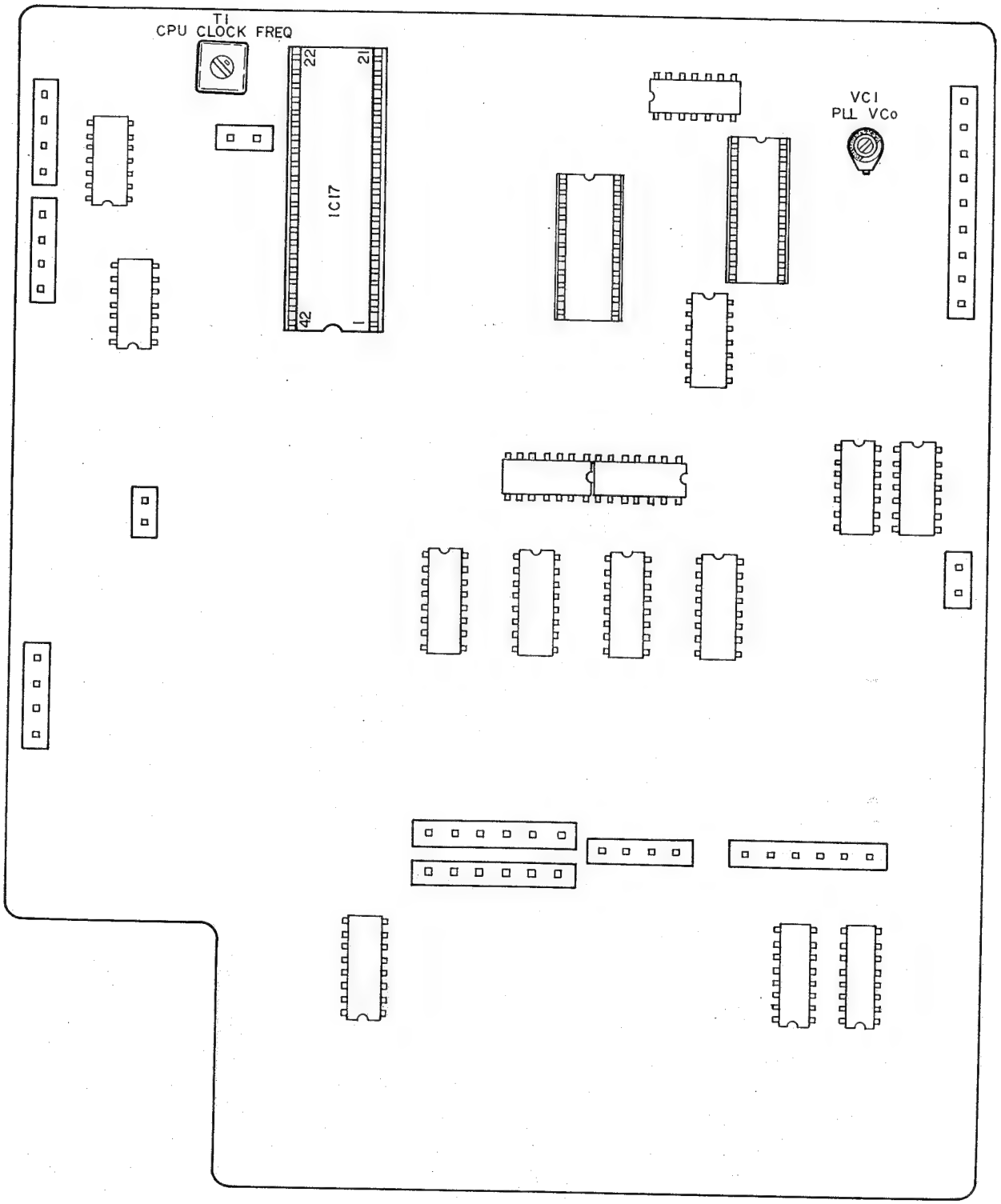
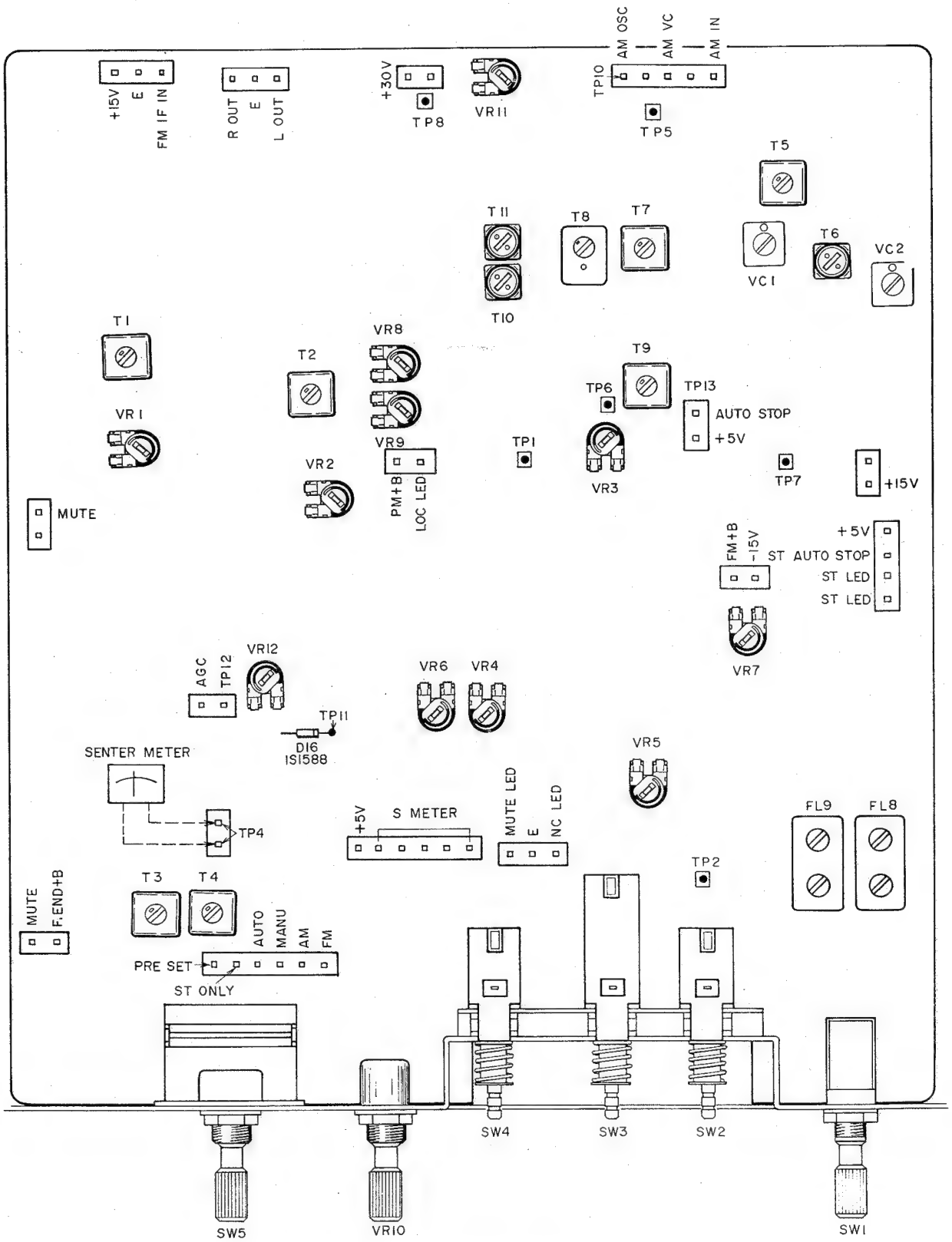


Fig. 7-3 Synthesizer P.C Board (ATS-8002)



AM T7:OSC FREQ
T5,6:LOW RANGE SENSITIVITY
VC1,2:HIGH RANGE SENSITIVITY
T10, 11,VR11:AUTO STOP
VR4:S METER

FM VR7:MPX PLL FREQ
T4:CENTER METER
T3:DISTORTION
VR1:IF GAIN
VR2,3:AUTO STOP
VR6:S METER
VR8,9:SEPARATION
VR12:MUTING SENSITIVITY

Fig. 7-4 Tuner P.C Board (ATS-8001A)

1. POWER SUPPLY ADJUSTMENT (Refer to Fig. 7-1)

Step	Adjustment Item	Test Point	Adjustment Parts	Result & Remarks
1	DC +15V	+15V Output Pin	VR-1	DC +15V (Volt. Meter)

2. AM SECTION ADJUSTMENT (Refer to Fig. 7-2, 7-3 and Fig. 7-4)

Step	Adjustment Item	Test Point	Adjustment Parts	Result & Remarks
1	CPU Clock Frequency	IC17 Pin 25 (ATS-8002)	T-1 (ATS-8002)	480 kHz ±1 kHz (Frequency Counter)
2	AM OSC Frequency	TP-10 TP-5	T-7	710 kHz ±1 kHz at TP-10 (Frequency Counter), with TP-5 grounded as short as possible.
3	Low Range Sensitivity (600 kHz or 603 kHz)	Output	T-5 T-6	1) Set Digital FL Display to 600 kHz (603 kHz). 2) Feed signal of 600 kHz (603 kHz), 30% modulation, 20 dB from SSG to Ant Input. 3) Adjust the distortion is at 10% when the SSG output is less than 16 dB. (Distortion Meter and SSG) (Note 1, 2)
4	High Range Sensitivity (1400 kHz or 1404 kHz)	Output	VC-1 VC-2	Adjust the sensitivity at 1400 kHz (1404 kHz) by the same as step 3.
5	Mid Range Sensitivity (1000 kHz or 999 kHz)	Output	Confirm	Check the sensitivity and distortion at 1000 kHz (999 kHz) by the same as step 3.
6				Readjust in step 3 to 5.
7	Auto-Stop	TP-8 TP-13	T-10 T-11	The output of TP-5 to the maximum by feeding 1000 kHz (999 kHz), 30 dB from SSG to Ant Input.
			VR-11	Feed 1000 kHz (999 kHz), 30 dB ±6 dB from SSG to Ant Input and make adjustment until TP-13 becomes "H" level. (Oscilloscope) (Note 3)
8	S Meter	S Meter (LED)	VR-4 VR-6	1) Connect 30% modulated, 1000 kHz (999 kHz), 50 dB signal from SSG to antenna input. 2) Adjust so that Digital FL Display should show 1000 kHz (999 kHz). 3) Turn VR-6 fully clockwise (Note 4). 4) Adjust VR-4 to a point where 5th LED of S Meter lights up (Note 5).

NOTE 1: In the AM band, the Digital FL Display changes in steps of 10 kHz for the 75 μsec de-emphasis in US and similar areas or in steps of 9 kHz for the 50 μsec de-emphasis in the Europe and similar areas.

2: As the Model AT-S08 uses digital circuits, the output frequency of the SSG should be checked with use of a frequency counter. This applies to the other items.

3: The point of changing to the "H" level is that the "L" level around 0 V changes instantaneously to the "H" level around 5 V DC. It can be checked in the manner that the "H" level should change to "L" level when the attennator of the SSG is decreased 1 dB after completion of the Auto-Stop adjustment in Step 4.

4: The FM S Meter should be adjusted with VR-6 as this is provided for adjusting the FM S Meter. Also, check to insure Step 6 and below in Section 3, the "FM Section Adjustment".
5: The point of the 5th LED light-up is that the 5th LED is lit with turning VR-4, then turned off when the attenuator of the SSG is decreased 1 dB.
6: It is convenient that the Digital FL Display should be preset to show a frequency specified for adjustment. After service, it should be returned to the original frequency preset by the customer.

3. FM SECTION ADJUSTMENT (Refer to Fig. 7-2, 7-3 and Fig. 7-4)

Step	Adjustment Item	Test Point	Adjustment Parts	Result & Remarks
1	CPU Clock Frequency	IC17 Pin 25 (ATS-8002)	T-1 (ATS-8002)	480 kHz ±1 kHz (Frequency Counter)
2	PLL Freq.	OSC Out (Front End)	VC-1 (ATS-8002)	(Digital FL Display indicating frequency +10.7 MHz) ±1 kHz. (Frequency Counter) (Note 1)
3	MPX PLL Freq.	TP-9	VR-7	19 kHz ±50 Hz. (Frequency Counter)
4	Center Meter	Both side of TP-4	T-4	1) Connect the center meter both side of TP-4. (Note 2) 2) Feed 90 MHz, 54 dB from SSG to Ant Input. 3) Adjust T-4 until the needle of center meter indicates the center of scale. (Center meter should be connected until the adjustment is completed)
5	Distortion	Output	T-3 IF (Front End)	Minimize the distortion under the condition described in Step 4. (Distortion Meter)
6				Readjust in steps 4 and 5.
7	Low Range Sensitivity (90 MHz)	Output	LA, LR 1, TCR1, LM, LO2 (Front End)	Input the 90 kHz signal from SSG into ANT Input and at the point where distortion is 3% adjust so that SSG's ATT is less than 5 dB. (Distortion Meter)
8	High Range Sensitivity (106 MHz)	Output	TCA, LR2, TCR2, TCM, TCO2 (Front End)	Input the 106 kHz signal from SSG into ANT Input and at the point where distortion is 3% adjust so that the SSG's ATT is less than 5 dB.
9				Readjust in steps 7 and 8.
10	IF Gain	IC 2 Pin 13 and GND (or TP-11 and Ground)	VR-1	1) Connect 98 MHz, 30 dB signal from SSG to antenna input. Adjust the Digital FL Display indication of 98 MHz. 2) Connect volt meter across Pin 13 of IC2 (LA-1230) and ground. 3) Set FM IF Band switch to "Narrow" position and note voltmeter read. Turn switch to "Wide" position and adjust VR-1 for same voltage as in "Narrow" position. (Volt meter)
11	S Meter	S Meter (LED)	VR-6	Connect 98 MHz, 45 dB signal from SSG to Ant Input. Adjust VR-6 to a point where 5th LED of S Meter lights up. (Note 2)

Step	Adjustment Item	Test Point	Adjustment Parts	Result & Remarks
12	Auto Stop	TP-1	VR-2	1) Connect 98 MHz, 20 dB signal from SSG to Ant Input. 2) Set FM Sensor/Muting switch to the "OFF" position. 3) Adjust VR-2 to a point where the voltage of TP-1 change from "L" Level to "H" Level. (Oscilloscope) (Note 3)
13	FM Muting Sensitivity	Output	VR-12 VR-10	Connect 98 MHz, 22 dB signal from SSG to antenna input. Set Mute control (VR-10) at extreme left, or minimum, and adjust VR-12 to a point where muting is effective (Note 4).
14	Auto-Stop (Multi-Pass)	TP-6	VR-3	Adjust VR-3 to a point where VTVM read changes "L" level to "H" level with no signal input.
15	Auto-Stop (Checking)	Digital FL Display	Checking	Connect 98 MHz, 20 dB signal from SSG to antenna input. Set Mute control (VR-10) at extreme left, or minimum, and make certain that auto-scanning stops at 98 MHz.
16	FM Separation	Output	1) VR-8 2) VR-9	1) Set FM IF Band switch to "Wide" position and connect 98 MHz, 54 dB stereo L-channel signal from SSG to antenna input. Adjust VR-8 until L-channel output is maximum and R-channel output is minimum. Similarly, proceed for R-channel using VR-8. 2) Set FM IF Band switch to "Narrow" position. Proceed in a way similar to that in Step (1) above, using VR-9.

NOTE 1: For the Center Meter should be used the tuning meter and the like available as a part of the other models. Before adjustment, disconnect the shorting wire of TP-4. Do not forget to reconnect after the repairs have been completed.

2: The 5th LED light-up point is that the 5th LED is gone off when the attenuator is decreased 1 dB.

3: The point of changing to the "H" level is that the output is changed to the "L" level when the attenuator is decreased 1 dB.

4: The muting point is that the audio signal begins coming out of the output connector.

5: All adjustments should be made with the IF Band switch set in the "Narrow" position unless otherwise specified.

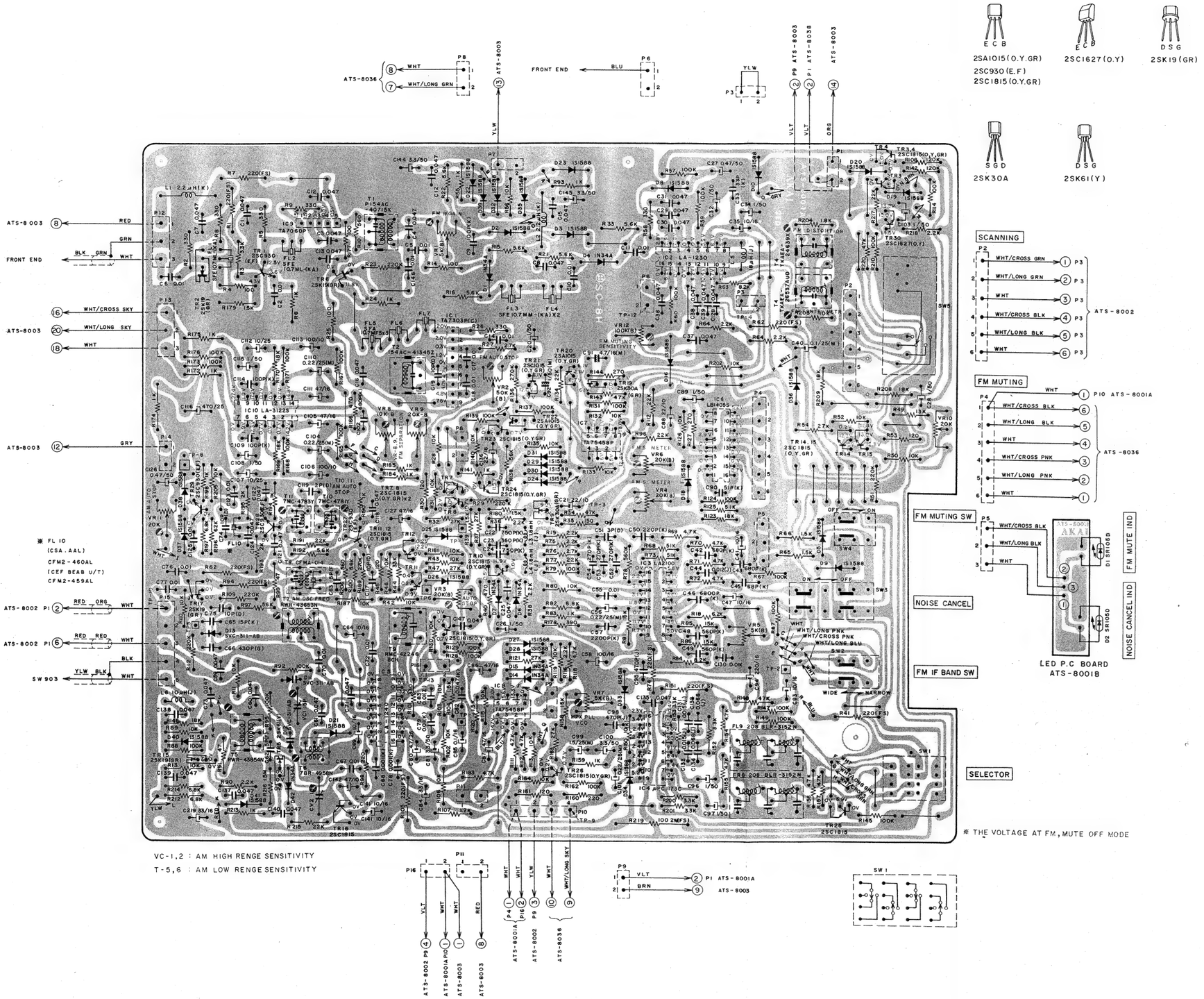
VIII. CLASSIFICATION OF VARIOUS P.C BOARDS

1. P.C BOARD TITLES AND IDENTIFICATION NUMBERS

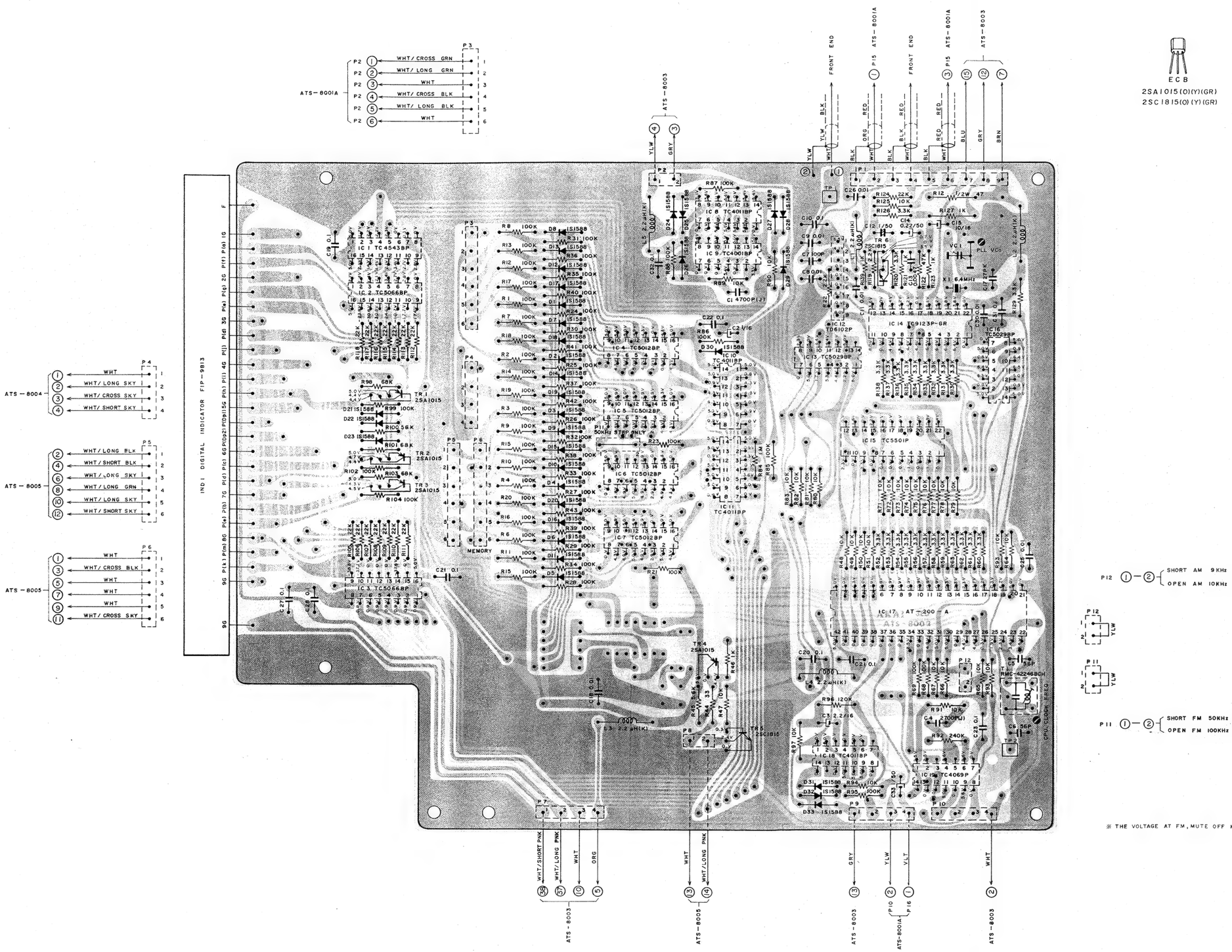
P.C Board Title	Number of P.C Board
Tuner P.C Board	ATS-8001 A
Synthesizer P.C Board	ATS-8002
Power Supply P.C Board (U/T)	ATS-8003
Power Supply P.C Board (AAL, CSA)	ATS-8051
Power Supply P.C Board (CEE, UK)	ATS-8052
Switch P.C Board (A)	ATS-8004
Switch P.C Board (B)	ATS-8005
LED P.C Board	ATS-8001 B
LED P.C Board (A)	ATS-8036
Volume P.C Board	ATS-8037
Filter P.C Board	ATS-8038
Battery P.C Board	ATS-8039
Power LED P.C Board	PM-1252

2. COMPOSITION OF VARIOUS P.C BOARDS

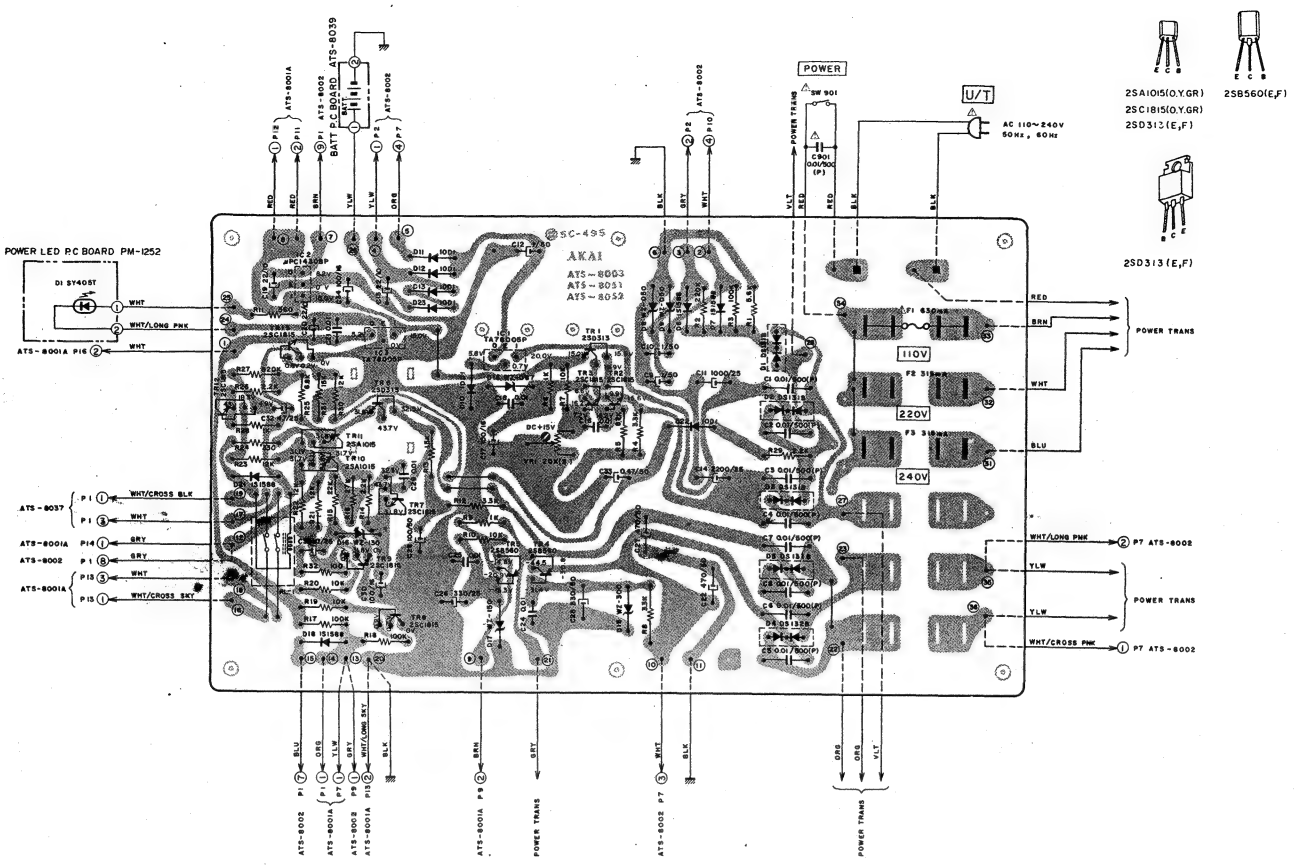
1) Tuner P.C Board ATS-8001A and LED P.C Board ATS-8001B

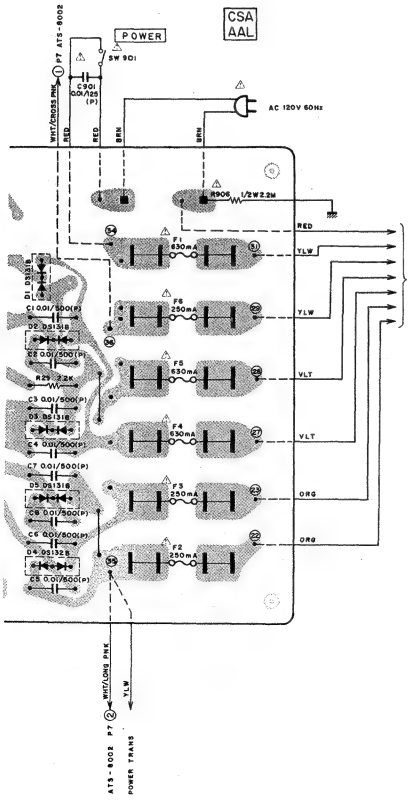


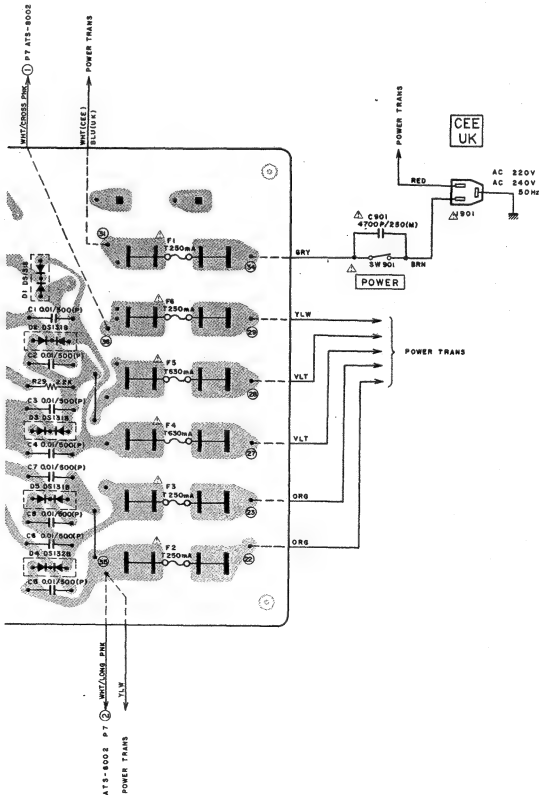
2) Synthesizer P.C Board ATS-8002



3) Power Supply P.C Board ATS-8003 (U/T), ATS-8051 (AAL, CSA) and ATS-8052 (CEE, UK)





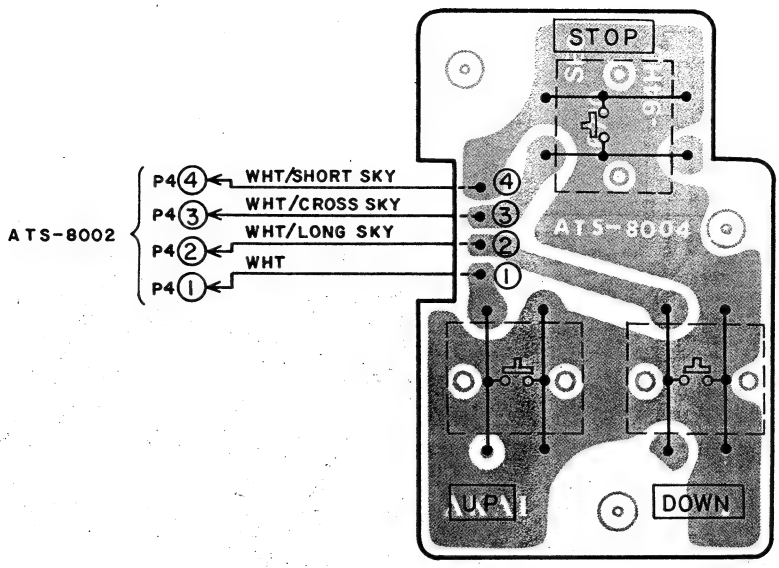


* THE VOLTAGE AT FM MUTE OFF MODE

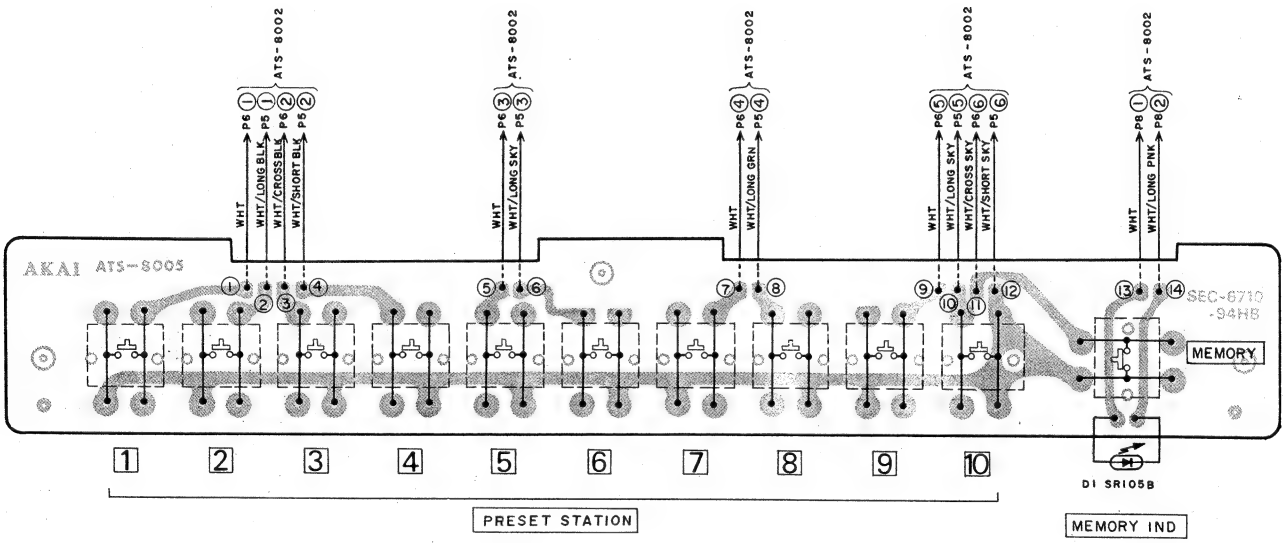
WARNING: △INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: △IL INDIQUE LES COMPOSANTS CRITIQUES DE SÛRETÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SÉCURITÉ QUE PAR DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

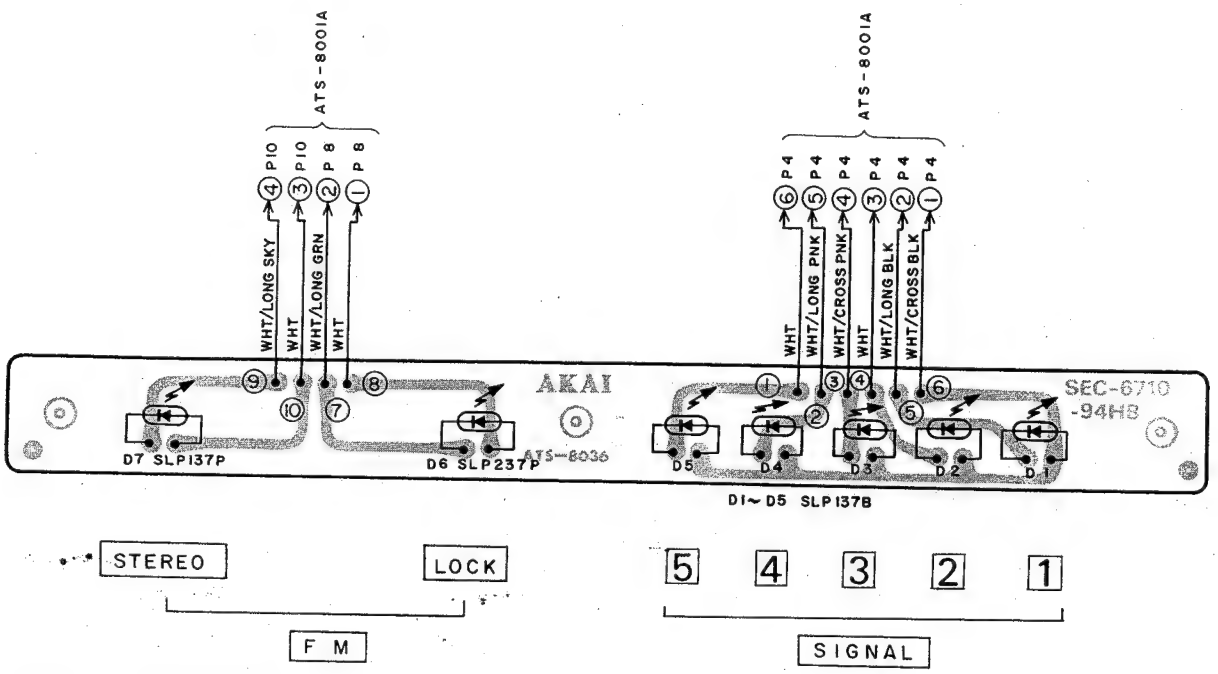
4) Switch P.C Board (A) ATS-8004



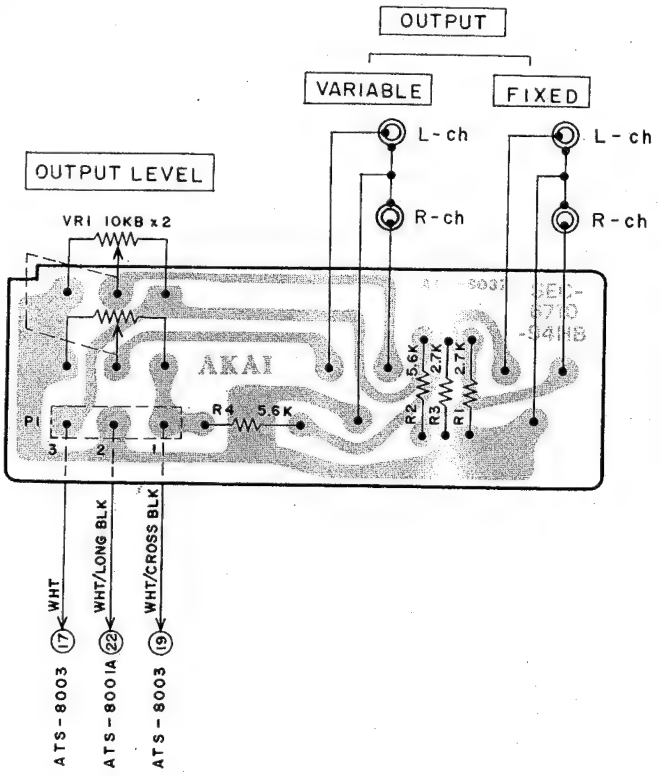
5) Switch P.C Board (B) ATS-8005



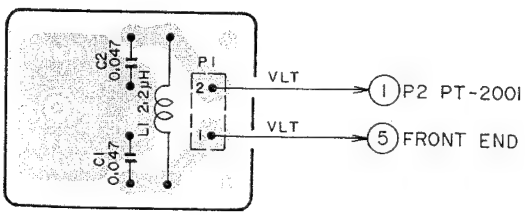
6) LED P.C Board (A) ATS-8036



7) Volume P.C Board ATS-8037



8) Filter P.C Board ATS-8038



SECTION 2

PARTS LIST

TABLE OF CONTENTS

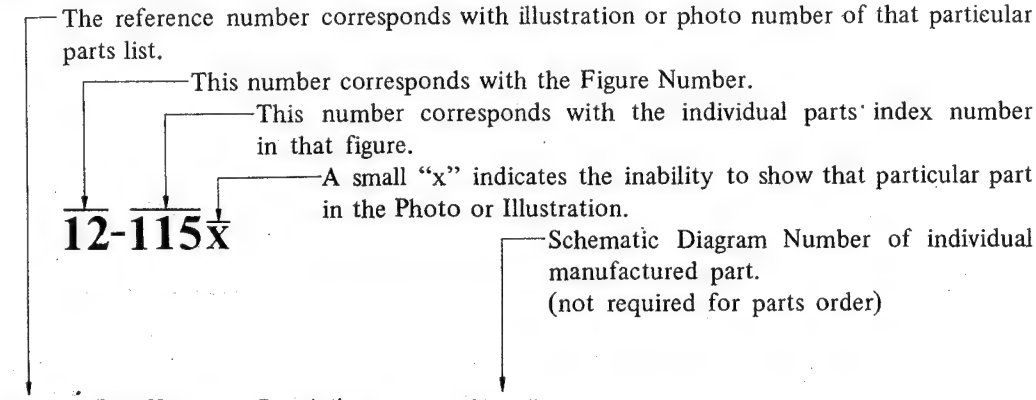
1. RECOMMENDED SPARE PARTS LIST 32
2. TUNER P.C BOARD (ATS-8001A) BLOCK 34
3. SYNTHESIZER P.C BOARD (ATS-8002/J) BLOCK 35
4. POWER SUPPLY P.C BOARD (ATS-8003/8051/8052) BLOCK 35
5. ASSEMBLY BLOCK 36
6. FINAL ASSEMBLY BLOCK 38

INDEX 39

Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.

HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read list.



Ref. No.	Parts No.	Description	Schematic No.
		FLYWHEEL BLOCK #13	
12-115x	800425	Flywheel Block Assy. Comp.	RDG-13
12-116	244506	Flywheel Only	RD-233
12-117x	244754	Felt, Flywheel	RD-275
12-118	251324	Main Metal Case	RD-236
12-119	253080	Main Metal	RD-237

4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of components of the Schematic Diagram or Service Manual.
5. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.
   It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

CAUTION:

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Service Manual (Basic Parts List) may be partially changed, please use this parts list for all future reference.

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMEMNDED PARTS.

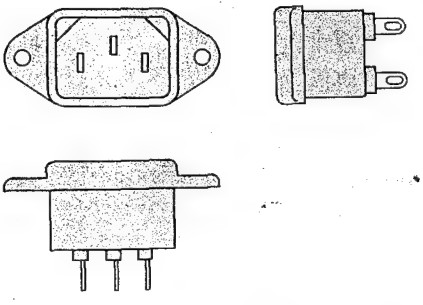
AVERTISSEMENT: ⚠ IL INDIQU LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.

AC INLET SYSTEM

This model is equipped with an AC INLET SYSTEM. Please refer to the AC INLET SYSTEM CHART below for the specific type. By the AC INLET SYSTEM, AC (mains) cord can be connected to and disconnected from the model because the model is provided with socket exclusively for AC (mains) cord on its main body.
Please note, however, that certain models are not equipped with this system and has a built-in AC (mains) cord as before.

AC INLET SYSTEM CHART

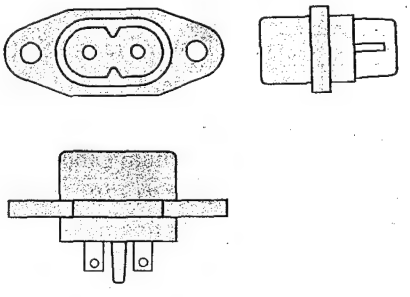
CLASS I

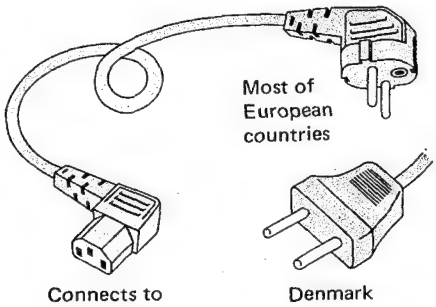


Picture 1
AC INLET to be installed on machines

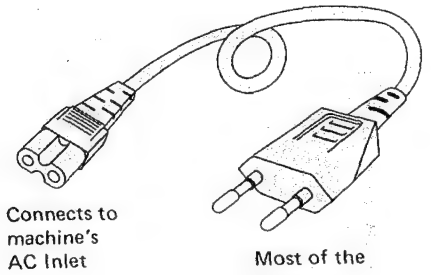
CLASS II

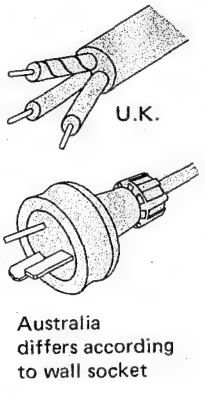
⧈ This mark indicating double insulation will be attached to machine's rear panel





Picture 2
AC (mains) cord





Parts List for AC (mains) Cord Set

Standard		Description	Type of AC Inlet	Parts No.
Class I	CEE	Cord Set CEE (3 cores)	3P	EW302993
	BEAB	Cord Set BEAB (3 cores)	3P	EW302994
	SAA	Cord Set SAA (3 cores)	3P	EW302996
	U/T	Cord Set U/T (3 cores)	3P	EW302646
Class II	CEE	Cord Set CEE (2 cores)	2P	EW638144
	BEAB	Cord Set BEAB (2 cores)	2P	EW302995
	SAA	Cord Set SAA (2 cores)	2P	EW302991
	U/T	Cord Set U/T (2 cores)	2P	EW302899

1. RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

Parts No.	Description	Notes
BA314386	Power Supply P.C Board Comp. AT-S08 (U/T)	U/T
BA314387	Power Supply P.C Board Comp. AT-S08 (CSA)	CSA, AAL
BA314388	Power Supply P.C Board Comp. AT-S80 (CEE)	CEE, UK
BA314396	Synthesizer P.C Board Comp. AT-S08	
BA314398	Tuner P.C Board Comp. AT-S08	
BT315357	⚠ Power Trans. PS-200TT-30	CSA, AAL
BT315359	⚠ Power Trans. PS-200TT-40	CEE
BT315360	⚠ Power Trans. PS-200TT-50	UK
BT315249	⚠ Power Trans. PS-200TT-70	U/T
EC616342	Trimmer/C. CTY122D33 15PF	
EC315346	Trimmer/C. ECV-1ZW 50x32E	
ED219464	Germanium Diode 1N34A	
ED311856	LED SLP137B	
ED315361	LED SLP237B	
ED698826	LED SR-105D	
ED315365	Silicon Diode DS131B	
ED315366	Silicon Diode DS132B	
ED557447	Silicon Diode 1S1588	
ED224526	Silicon Diode 10D1	
ED315411	Vari Cap Diode SVC-311-AB	
ED315368	Zener Diode WZ-067	
ED539976	Zener Diode WZ-130	
ED237960	Zener Diode WZ-150	
ED315372	Zener Diode WZ-300	
EE315248	Front End VFT-51EH-23	
EF315334	⚠ Fuse 250mA 125V	CSA, AAL
EF306125	⚠ Fuse 315mA 250V	U/T
EF305703	⚠ Fuse 630mA 125V	CSA, AAL
EF306124	⚠ Fuse 630mA 250V	U/T
EF300586	⚠ Fuse (EAWK) 250MAT	CEE, UK
EF601942	⚠ Fuse (SEMKO T Type) 630MAT	CEE, UK
EI315388	Crystal OSC 6.4MHz	
EI650586	IC LA-1230	
EI293185	IC LA-1240	
EI697871	IC LA-3122S	
EI310299	IC LA2100	
EI315491	IC LB1405S	
EI573838	IC TA7060P	
EI315385	IC TC5501P	
EI315384	IC TC9123P-GR	
EI315387	IC AT-200-A	
EI213390	IC NJM4558D	
EI299441	IC TA7303P (C)	
EI315243	IC TA78005P	
EI313797	IC TC4001BP	
EI304657	IC TC4011BP	
EI304657	IC TC4011BP	

Parts No.	Description	Notes
EI306726	IC TC4069P	
EI315378	IC TC4543BP	
EI315380	IC TC5012BP	
EI315383	IC TC5029BP	
EI315379	IC TC5066BP	
EI315381	IC TD6102P	
EI308850	IC μPC1173C	
EI315364	IC μPC14308	
EP249344	Reed Relay, L Type L24	
ES310839	⚠ Push SW. SDG1P-E 5A/80A 250V	CEE, UK
ES665875	⚠ Push SW. SDG1P-J TV-3 UL/CSA	CSA, AAL
ES655806	⚠ Push SW. SDG1P-J TV3 CSA	U/T
ES315362	Push SW. AKC8S	
ES315393	Push SW. 12T-8S090	
ES315394	Rotary SW. SRJ1014	
ES315395	Rotary SW. SRU2043S	
ES656335	Slide SW. SSB02210	
ET315313	FET 2SK19 (GR)	
ET491051	FET 2SK30A (GR)	
ET315410	FET 2SK61 (Y)	
ET308867	Transistor 2SA1015 (O) (Y) (GR)	
ET308867	Transistor 2SA1015 (O) (Y) (GR)	
ET308867	Transistor 2SA1015 (O) (Y) (GR)	
ET305463	Transistor 2SA970 (GR) (BL)	
ET219868	Transistor 2SB560 (E) (F)	
ET293253	Transistor 2SC1627 (O) (Y)	
ET305221	Transistor 2SC1815 (O) (Y) (GR)	
ET305221	Transistor 2SC1815 (O) (Y) (GR)	
ET305221	Transistor 2SC1815 (O) (Y) (GR)	
ET618873	Transistor 2SC930 (E) (F)	
ET452531	Transistor 2SD313 (E) (F)	
EV315363	Single-Axial 2-Throw/Vol. GM70R 10kBx2	
EV315396	Vol. VM10R 10kB	
TA315369	Digital Display FIP-9B13	

2. TUNER P.C BOARD (ATS-8001A) BLOCK

Symbol No.	Parts No.	Description	Schematic No.
2-1	BA314398	Tuner P.C Board Comp. AT-S08	ATS-8063
2-IC1	EI299441	IC TA7303P (C)	45-8-216
2-IC2	EI650586	IC LA-1230	45-8-152
2-IC3	EI310299	IC LA2100	45-8-319
2-IC4	EI308850	IC μPC1173C	45-8-318
2-IC5	EI293185	IC LA-1240	45-8-220
2-IC6	EI315491	IC LB1405S	45-8-365
2-IC7,8	EI213390	IC NJM4558D	45-8-191
2-IC9	EI573838	IC TA7060P	45-8-97
2-IC10	EI697871	IC LA-3122S	45-8-185
2-TR1	ET618873	Transistor 2SC930 (E)(F)	45-1-185
2-TR2	ET315313	FET 2SK19 (GR)	45-12-3
2-TR3,4	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR5	ET315410	FET 2SK61 (Y)	45-12-24
2-TR6	ET315313	FET 2SK19 (GR)	45-12-3
2-TR7,8	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR9	ET491051	FET 2SK30A (GR)	45-12-4
2-TR10to14	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR15	ET315313	FET 2SK19 (GR)	45-12-3
2-TR16	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR17	ET315313	FET 2SK19 (GR)	45-12-3
2-TR18	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR19	ET491051	FET 2SK30A (GR)	45-12-4
2-TR20	ET308867	Transistor 2SA1015 (O)(Y)(GR)	45-1-328
2-TR21	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR22	ET308867	Transistor 2SA1015 (O)(Y)(GR)	45-1-328
2-TR23to26	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
2-TR27to29	ET618873	Transistor 2SC930 (E)(F)	45-1-185
2-TR30	ET293253	Transistor 2SC1627 (O)(Y)	45-1-263
2-D1	ED219464	Germanium Diode 1N34A	45-3-1
2-D2,3	ED557447	Silicon Diode 1S1588	45-3-22
2-D4	ED219464	Germanium Diode 1N34A	45-3-1
2-D5	ED557447	Silicon Diode 1S1588	45-3-22
2-D6,7	ED219464	Germanium Diode 1N34A	45-3-1
2-D8to10	ED557447	Silicon Diode 1S1588	45-3-22
2-D11to13	ED315411	Vari Cap Diode SVC-311-AB	45-3-54
2-D14,15	ED219464	Germanium Diode 1N34A	45-3-1
2-D16to41	ED557447	Silicon Diode 1S1588	45-3-22
2-D42	ED219464	Germanium Diode 1N34A	45-3-1
2-FL1,2	ER315406	Ceramic Filter SFE10.7 MLK-A	53-1-167
2-FL3,4	ER315407	Ceramic Filter SFE10.7 MMK-A	53-1-168
2-FL5to7	ER315408	Ceramic Filter SFA10.7MF5	53-1-169
2-FL8,9	ER308855	Low Pass Filter 208BLR-3152N	53-1-140
2-FL10	ER315409	Ceramic Filter CFM2-460AL (US-A, 75μsec)	53-1-174
2-FL10	ER322271	Ceramic Filter CFM2-459AL (US-B, 50μsec)	53-1-184
2-L1,2	EO539820	Peaking Coil 2.2μH(K)	23-1-187
2-L3,4	EO380564	Ferri Inductor FL7H 1.8MH (J)	23-1-3
2-L5	EO650610	Inductor 144LZ 18μH(J)	23-1-240
2-L6	EO315405	Inductor 144LZ 10μH(J)	23-1-240
2-T1	BT315397	FM-IF Trans. P154AC-40715X	23-1-323
2-T2	BT299575	FM-IF Trans. 154AC-41345Z	23-1-274
2-T3	EO315552	Detection Coil TKZEA-26537AUO	23-1-330
2-T4	EO307203	Detection Coil TKAEA-24639X	23-1-291
2-T5	EO315398	AM-ANT Coil RWR-43854N	23-1-316
2-T6	EO315399	AM-RF Coil 7BR-4958N	23-1-317
2-T7	EO315400	AM-OSC Coil RWR-43653N	23-1-318
2-T8	EO315401	AM-IF Coil CFMA-014	23-1-319
2-T9	BT293398	AM-IF Trans. RMC-42246BCH 468 kHz	23-1-276
2-T10	EO315402	AM-IF Coil 7MC-4781Y	23-1-320
2-T11	EO315403	AM-IF Coil 7MC-4783Y	23-1-321
2-SW1	ES315395	Rotary SW. SRU2043S	25-6-174
2-SW2to4	ES315393	Push SW. 12T-8S090	25-5-325
2-SW5	ES315394	Rotary SW. SRJ1014	25-6-173
2-VC1,2	EC616342	Trimmer/C. CTY122D33 15PF	24-2-32
2-VR1	EV464207	Semi-Fixed/Vol. V8K4-1 5 kB	36-10-266
2-VR2,3	EV464220	Semi-Fixed/Vol. V8K4-1 50 k(B)	36-10-266
2-VR4	EV522797	Semi-Fixed/Vol. V8K4-1 20 k(B)	36-10-266
2-VR5	EV464207	Semi-Fixed/Vol. V8K4-1 5 kB	36-10-266
2-VR6	EV522797	Semi-Fixed/Vol. V8K4-1 20 k(B)	36-10-266
2-VR7	EV464207	Semi-Fixed/Vol. V8K4-1 5 kB	36-10-266
2-VR8	EV520806	Semi-Fixed/Vol. V8K4-1 10 k(B)	36-10-266
2-VR9	EV522797	Semi-Fixed/Vol. V8K4-1 20 k(B)	36-10-266
2-VR10	EV315396	Vol. VM10R 10kB	36-6-39
2-VR11	EV522797	Semi-Fixed/Vol. V8K4-1 20k(B)	36-10-266
2-VR12	EV464231	Semi-Fixed/Vol. V8K4-1 100 kB	36-10-266
2-R1	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R7	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R41	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R62	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R74	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R94	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R105	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R151	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R186	ER308849	Carbon/R. F 1/4W 220 ohms (J)	35-11-25
2-R219	ER321192	Metal Oxide Film/R. F 2W 100 ohms (J)	35-11-22
2-C40	EC523282	Solid Aluminum/C. (Vert.) 0.1μF(M) 25WV	24-19-2
2-C56	EC522167	Solid Aluminum/C. (Vert.) 0.22μF(M) 25WV	24-19-2
2-C66	EC317129	Styrol/C. 430PF (G) 50WV	24-11-14
2-C85	EC223560	Solid Aluminum/C. (Vert.) 0.1μF (M) 16WV	24-19-2
2-C91	EC313533	NP/C. 4.7μF (M) 16 WV	24-17-31
2-C92	EC313532	NP/C. 1μF (M) 50WV	24-17-31
2-C95	EC306987	Styrol/C. 470PF(J)50WV	24-11-14
2-C98	EC306987	Styrol/C. 470PF(J) 50WV	24-11-14
2-C99	EC638188	Solid Aluminum/C. (Vert.) 1.5μF(M) 25WV	24-19-2

Symbol No.	Parts No.	Description	Schematic No.
2-C101	EC522167	Solid Aluminum/C. (Vert.) 0.22μF(M)25WV	24-19-2
2-C104	EC522167	Solid Aluminum/C. (Vert.) 0.22μF(M)25WV	24-19-2
2-C110	EC522167	Solid Aluminum/C. (Vert.) 0.22μF(M)25WV	24-19-2

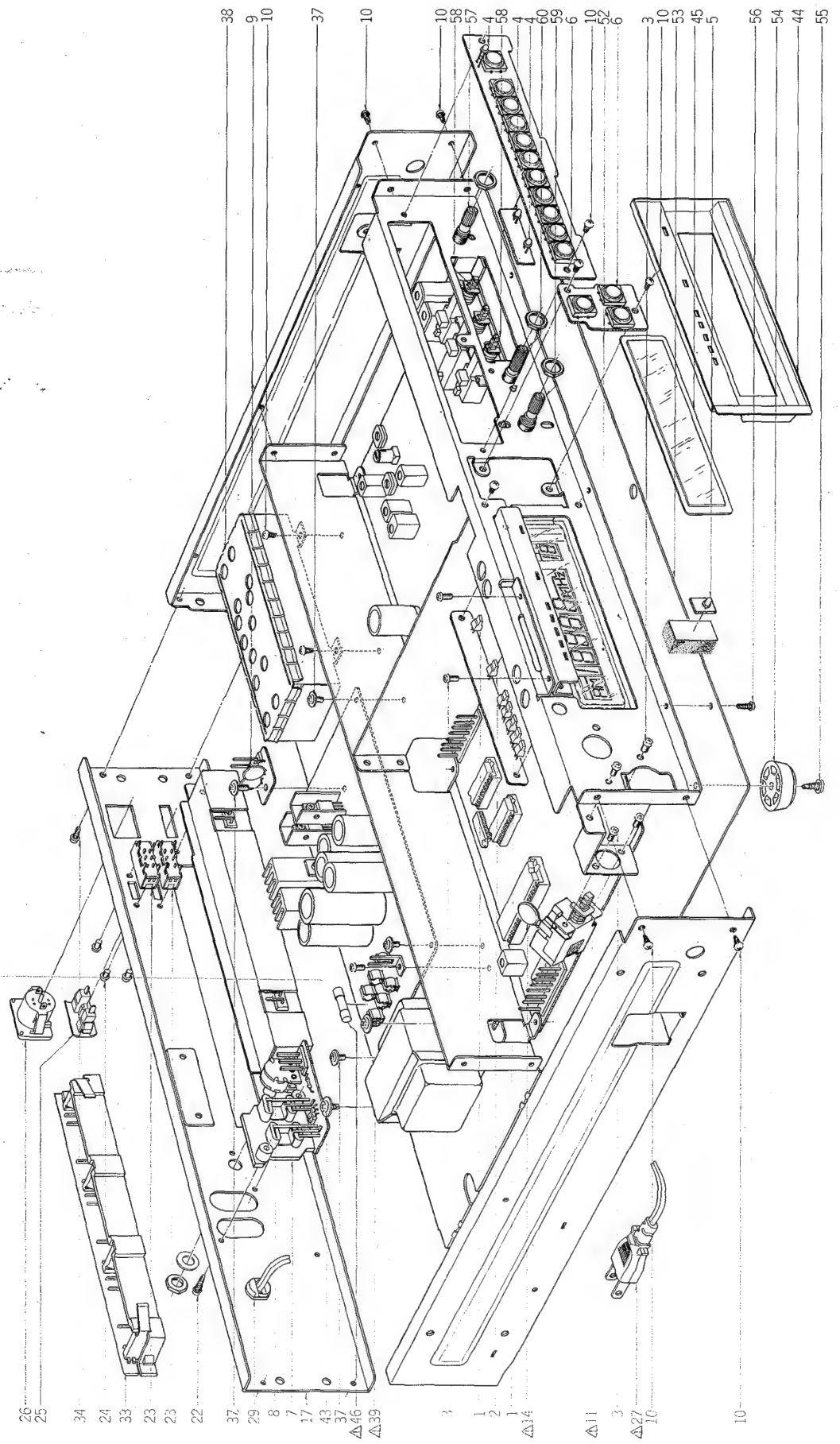
3. SYNTHESIZER P.C BOARD (ATS-8002/J) BLOCK

Symbol No.	Parts No.	Description	Schematic No.
3-1	BA314396	Synthesizer P.C Board Comp. AT-S08	ATS-8062
3-IC1	EI315378	IC TC4543BP	45-8-354
3-IC2,3	EI315379	IC TC5066BP	45-8-355
3-IC4to7	EI315380	IC TC5012BP	45-8-356
3-IC8	EI304657	IC TC4011BP	45-8-232
3-IC9	EI313797	IC TC4001BP	45-8-348
3-IC10,11	EI304657	IC TC4011BP	45-8-232
3-IC12	EI315381	IC TD6102P	45-8-362
3-IC13	EI315383	IC TC5029BP	45-8-358
3-IC14	EI315384	IC TC9123P-GR	45-8-359
3-IC15	EI315385	IC TC5501P	45-8-360
3-IC16	EI315383	IC TC5029BP	45-8-358
3-IC17	EI315387	IC AT-200-A	45-8-363
3-IC18	EI304657	IC TC4011BP	45-8-332
3-IC19	EI306726	IC TC4069P	45-8-263
3-TR1to4	ET308867	Transistor 2SA1015 (O)(Y)(GR)	45-1-328
3-TR5,6	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
3-D1to33	ED557447	Silicon Diode 1S1588	45-3-22
3-L1to5	EO539820	Peaking Coil 2.2μH(K)	23-1-187
3-T1	BT293398	AM-IF Trans. RMC-42246BCH 468 kHz	23-1-276
3-X1	EI315388	Crystal OSC 6.4MHz	53-1-171
3-IND1	TA315369	Digital Display FIP-9B13	53-1-173
3-VC1	EC315346	Trimmer/C. ECV-1ZW 50x32E	24-2-48
3-J12,13	EJ315370	22P LSI Socket	31-1-243
3-J14	EJ315377	42P LSI Socket	31-1-244
3-C1	EC315390	Styrol/C. 4700PF(J)50WV	24-11-14
3-C2	EC310063	Tantalum/C. (DA) 1μF(K) 16WV	24-15-14
3-C3	EC306788	Solid Aluminum/C. (Vert.) 2.2μF (M) 16WV	24-19-2
3-C4	EC315348	Styrol/C. 2700PF (J) 50WV	24-11-14
3-C12	EC313532	NP/C. 1μF(M) 50WV	24-17-31
3-2	ZS462194	Tapping Screw, #2 pan 3x8 (W=8)	

4. POWER SUPPLY P.C BOARD (ATS-8003/8051/8052) BLOCK

Symbol No.	Parts No.	Description	Schematic No.
4-1	BA314386	Power Supply P.C Board Comp. AT-S08 (U/T)	ATS-8059
4-2	BA314387	Power Supply P.C Board Comp. AT-S08 (CSA) (CSA, AAL)	ATS-8059
4-3	BA314388	Power Supply P.C Board Comp. AT-S80 (CEE) (CEE, UK)	ATS-8059
4-IC1	EI315243	IC TA78005P	45-8-364
4-IC2	EI315364	IC μPC14308	45-8-352
4-IC3	EI315243	IC TA78005P	45-8-364
4-TR1	ET452531	Transistor 2SD313(E)(F)	45-1-105
4-TR2,3	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
4-TR4,5	ET219868	Transistor 2SB560(E)(F)	45-1-232
4-TR6	ET452531	Transistor 2SD313(E)(F)	45-1-105
4-TR7to9	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
4-TR10	ET305463	Transistor 2SA970 (GR)(BL)	45-1-303
4-TR11	ET308867	Transistor 2SA1015 (O)(Y)(GR)	45-1-328
4-TR12,13	ET305221	Transistor 2SC1815 (O)(Y)(GR)	45-1-299
4-D1to3	ED315365	Silicon Diode DS131B	45-3-55
4-D4	ED315366	Silicon Diode DS132B	45-3-56
4-D5	ED315365	Silicon Diode DS131B	45-3-55
4-D6,7	ED557447	Silicon Diode 1S1588	45-3-22
4-D8,9	ED315367	Zener Diode WZ-050	45-6-67
4-D10to13	ED224526	Silicon Diode 10D1	45-2-11
4-D14	ED315368	Zener Diode WZ-067	45-6-67
4-D15	ED315372	Zener Diode WZ-300	45-6-67
4-D16	ED539976	Zener Diode WZ-130	45-6-67
4-D17	ED237960	Zener Diode WZ-150	45-6-67
4-D18	ED557447	Silicon Diode 1S1588	45-3-22
4-D22,23	ED224526	Silicon Diode 10D1	45-2-11
4-VR1	EV522797	Semi-Fixed/Vol. V8K4-1 20k(B)	36-10-266
4-RL1	EP249344	Reed Relay, L Type L24	47-2-28
4-C1to8	EC204671	Ceramic/C. DD31-6E 0.01μF(P) 500WV	24-5-66
4-C11	EC450270	Elect./C. (Vert.) 1000μF 25WV	24-12-9
4-C14	EC657966	Elect./C. (Vert.) 2200μF 25WV	24-12-9
4-4	ZS421806	Screw, pan 3x8	
4-5	ZS325495	Tapping Screw, #2 BR 3x6	

5. ASSEMBLY BLOCK



ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.
		LED P.C BOARD BLOCK	
5-1	ED311856	LED SLP137B	45-15-23
5-2	ED315361	LED SLP237B	45-15-28
5-3	ZS379350	Screw, pan 3x6	
		LED P.C BOARD (A) BLOCK	
5-4	ED698826	LED SR-105D	45-15-16
		LED P.C BOARD (B) BLOCK	
5-5	ED311794	LED SY405T	45-15-24
		SW. P.C BOARD BLOCK	
5-6	ES315362	Push SW. AKC8S	25-5-317
		VOL. P.C BOARD BLOCK	
5-7	EJ293365	4P Pin Jack	31-1-197
5-8	EV315363	Single-Axial 2-Throw/Vol. GM70R 10kBx2	36-22-44
		FILTER P.C BOARD BLOCK	
5-9	EO539820	Peaking Coil 2.2μH(K)	23-1-187
		ASSEMBLY BLOCK	
5-10	ZS325495	Tapping Screw, #2 BR 3x6	
5-11	ES655806	⚠ Push SW. SDG1P-J TV3 CSA (U/T)	25-5-187
5-12x	ES665875	⚠ Push SW. SDG1P-J TV-3 UL/CSA (CSA, AAL)	25-5-199
5-13x	ES310839	⚠ Push SW. SDG1P-E 5A/80A 250V (CEE, UK)	25-5-310
5-14	EC204671	⚠ Ceramic/C. DD31-6E 0.01μF(P) 500WV (U/T)	24-5-66
5-15x	EC314688	⚠ Ceramic/C. DE7150 FZ 0.01μF(P) 125WV (CSA, AAL)	24-5-87
5-16x	EC301320	⚠ MP/C. 4700PF(M) 250WV (CEE, UK)	24-9-122
5-17	SP315179	Rear Panel (U) (U/T)	ATS-8013
5-18x	SP315226	Rear Panel (C) (CSA)	ATS-8013
5-19x	SP315225	Rear Panel (A) (AAL)	ATS-8013
5-20x	SP315181	Rear Panel (E) (CEE)	ATS-8014
5-21x	SP315227	Rear Panel (B) (UK)	ATS-8014
5-22	ZS522865	Tapping Screw, #2 BR 3x12 (Black)	
5-23	ES656335	Slide SW. SSB02210	25-3-117
5-24	ZS608185	Screw, pan 2.6x4 (Black)	
5-25	EJ315244	Socket CS080-1-2	31-1-242
5-26	EJ315333	Plug TCP9106-01-101	42-1-160
5-27	EW306428	⚠ AC Cord (U/T)	26-3-64
5-28x	EW305691	⚠ AC Cord CUL (CSA, AAL)	26-3-65
5-29	EZ631945	⚠ Strain Relief SR-4N-4 (U/T, CSA, AAL)	2-7-49
5-30x	EJ296853	⚠ 3P In-let CM-3 (CEE, UK)	31-1-199
5-31x	ZS463353	Tapping Screw, #2 BR 3x8 (Black)	
5-32x	ZS447761	Tapping Screw, #2 BR 3x6 (Black)	
5-33	TA314294	Battery Case Assy PS-200T	13-2-64
5-34	ZS308846	Tapping Screw, #2 BR 3x8 (Oval Neck)	7-1-69
5-35x	ZS434250	Screw, pan head 4x8, w/washer (CEE, UK)	
5-36	ZW413188	Nut, #1 M4 (CEE, UK)	
5-37	ZS462194	Tapping Screw, #2 pan 3x8 (w=8)	
5-38	EE315248	Front End VFT-51EH-23	57-2-52
5-39	BT315249	⚠ Power Trans. PS-200TT-70 (U/T)	38-4-723
5-40x	BT315357	⚠ Power Trans. PS-200TT-30 (CSA, AAL)	38-4-720
5-41x	BT315359	⚠ Power Trans. PS-200TT-40 (CEE)	38-4-721
5-42x	BT315360	⚠ Power Trans. PS-200TT-50 (UK)	38-4-722
5-43	ZS297641	Tapping Screw, #2 3x8 (Bind) W=10	
5-44	SP315185	Indication Panel	ATS-8018
5-45	SZ315259	Indication Plate	PT-2018
5-46	EF306124	⚠ Fuse 630mA 250V (U/T)	39-1-64
5-47x	EF306125	⚠ Fuse 315mA 250V (U/T)	39-1-64
5-48x	EF305703	⚠ Fuse 630mA 125V (CSA, AAL)	39-1-65
5-49x	EF315334	⚠ Fuse 250mA 125V (CSA, AAL)	39-1-65
5-50x	EF300586	⚠ Fuse (EAWK) 250MAT (CEE, UK)	39-1-60
5-51x	EF601942	⚠ Fuse (SEMKO T Type) 630MAT (CEE, UK)	39-1-53
5-52	TA315369	Digital Display FIP-9B13	53-1-173
5-53	SP315188	Bottom Plate	ATS-8021
5-54	SA311742	Circular Foot	PC-2032
5-55	ZS565942	Tapping Screw, #2 pan 4x8	
5-56	ZS447840	Tapping Screw, #2 BR 3x8	
5-57	ES315395	Rotary SW. SRU2043S	25-6-174
5-58	ES315393	Push SW. 12T-8S090	25-5-325
5-59	ES315394	Rotary SW. SRJ1014	25-6-173
5-60	EV315396	Vol. VM10R 10kB	36-6-39

6. FINAL ASSEMBLY BLOCK

FINAL ASSEMBLY BLOCK

Ref. No.	Parts No.	Description	Schematic No.
		FRONT PANEL BLOCK	
6-1	BD314400	Front Panel Block AT-S08	
6-2x	BD314401	Front Panel Block AT-S08-BL	
6-3	SP315202	Front Plate	ATS-8031
6-4	SE315196	Escutcheon (A)	ATS-8027
6-5	SB315194	Button (A)	ATS-8026
6-6x	SB315195	Button (A-BL)	ATS-8026
6-7x	ZG315193	Spring (A)	ATS-8025
6-8	SE311728	Power Lens	PC-2021
6-9	SE315203	Front Escutcheon	ATS-8032
6-10x	SE315204	Front Escutcheon (BL)	ATS-8032
6-11	SE315219	Escutcheon (D)	ATS-8046
6-12	SB315216	Button (D)	ATS-8042.8050
6-13	SB315217	Button (E)	ATS-8043.8050
6-14	SB315218	Button (F)	ATS-8044.8050
6-15	SE315210	Escutcheon (C)	ATS-8040
6-16x	SE315211	Escutcheon (C-BL)	ATS-8040
6-17	SB315212	Button (C)	ATS-8041
6-18x	SB315214	Button (C-BL)	ATS-8041
6-19x	ZG315220	Spring (C)	ATS-8045
6-20	SE315200	Escutcheon (B)	ATS-8030
6-21x	SE315201	Escutcheon (B-BL)	ATS-8030
6-22	SB315197	Button (B)	ATS-8028
6-23x	SB315198	Button (B-BL)	ATS-8028
6-24x	ZG315199	Spring (B)	ATS-8029
		FINAL ASSEMBLY BLOCK	
6-25x	ZS447840	Tapping Screw, #2 BR 3x8	
6-26	BC315189	Upper Cover	ATS-8022
6-27	ZS537006	Screw, bind 4x8 (Black)	
6-28	SA311714	Foot	PC-2029
6-29x	ZS411232	Screw, binding head 4x10	
6-30	SK315206	Knob (A)	ATS-8034
6-31x	SK315207	Knob (A-BL)	ATS-8034
6-32	SK315208	Knob (B)	ATS-8035
6-33x	SK315209	Knob (B-BL)	ATS-8035

INDEX

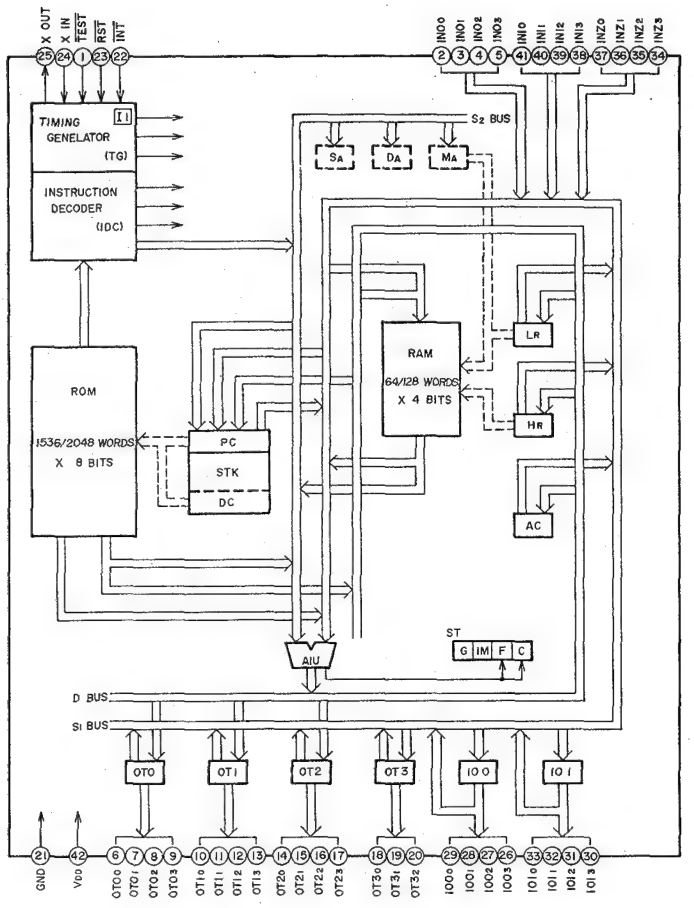
Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.	Parts No.	Ref. No. & Symbol No.
BA314386	4-1	EI304657	3-IC18	ET305221	4-TR2,3	ZS411232	6-29x		
BA314387	4-2	EI306726	3-IC19	ET305221	4-TR7to9	ZS421806	4-4		
BA314388	4-3	EI308850	2-IC4	ET305221	4-TR12,13	ZS434250	5-35x		
BA314396	3-1	EI310299	2-IC3	ET305463	4-TR10	ZS447761	5-32x		
BA314398	2-1	EI313797	3-IC9	ET308867	2-TR20	ZS447840	5-56		
BC315189	6-26	EI315243	4-IC1	ET308867	2-TR22	ZS447840	6-25x		
BD314400	6-1	EI315243	4-IC3	ET308867	3-TR1to4	ZS462194	3-2		
BD314401	6-2x	EI315364	4-IC2	ET308867	4-TR11	ZS462194	5-37		
BT293398	2-T9	EI315378	3-IC1	ET315313	2-TR2	ZS463353	5-31x		
BT293398	3-T1	EI315379	3-IC2,3	ET315313	2-TR6	ZS522865	5-22		
BT299575	2-T2	EI315380	3-IC4to7	ET315313	2-TR15	ZS537006	6-27		
BT315249	5-39	EI315381	3-IC12	ET315313	2-TR17	ZS565942	5-55		
BT315357	5-40x	EI315383	3-IC13	ET315410	2-TR5	ZS608185	5-24		
BT315359	5-41x	EI315383	3-IC16	ET452531	4-TR1	ZW413188	5-36		
BT315360	5-42x	EI315384	3-IC14	ET452531	4-TR6				
BT315397	2-T1	EI315385	3-IC15	ET491051	2-TR9				
EC204671	4-C1to8	EI315387	3-IC17	ET491051	2-TR19				
EC204671	5-14	EI315388	3-X1	ET618873	2-TR1				
EC223560	2-C85	EI315491	2-IC6	ET618873	2-TR27to29				
EC301320	5-16x	EI573838	2-IC9	EV315363	5-8				
EC306788	3-C3	EI650586	2-IC2	EV315396	2-VR10				
EC306987	2-C95	EI697871	2-IC10	EV315396	5-60				
EC306987	2-C98	EJ293365	5-7	EV464207	2-VR1				
EC310063	3-C2	EJ296853	5-30x	EV464207	2-VR5				
EC313532	2-C92	EJ315244	5-25	EV464207	2-VR7				
EC313532	3-C12	EJ315333	5-26	EV464220	2-VR2,3				
EC313533	2-C91	EJ315370	3-J12,13	EV464231	2-VR12				
EC314688	5-15x	EJ315377	3-J14	EV520806	2-VR8				
EC315346	3-VC1	EO307203	2-T4	EV522797	2-VR4				
EC315348	3-C4	EO315398	2-T5	EV522797	2-VR6				
EC315390	3-C1	EO315399	2-T6	EV522797	2-VR9				
EC317129	2-C66	EO315400	2-T7	EV522797	2-VR11				
EC450270	4-C11	EO315401	2-T8	EV522797	4-VR1				
EC522167	2-C56	EO315402	2-T10	EW305691	5-28x				
EC522167	2-C101	EO315403	2-T11	EW306428	5-27				
EC522167	2-C104	EO315405	2-L6	EZ631945	5-29				
EC522167	2-C110	EO315552	2-T3	SA311714	6-28				
EC523282	2-C40	EO380564	2-L3,4	SA311742	5-54				
EC616342	2-VC1,2	EO539820	2-L1,2	SB315194	6-5				
EC638188	2-C99	EO539820	3-L1to5	SB315195	6-6x				
EC657966	4-C14	EO539820	5-9	SB315197	6-22				
ED219464	2-D1	EO650610	2-L5	SB315198	6-23x				
ED219464	2-D4	EP249344	4-RL1	SB315212	6-17				
ED219464	2-D6,7	ER308849	2-R1	SB315214	6-18x				
ED219464	2-D14,15	ER308849	2-R7	SB315216	6-12				
ED219464	2-D42	ER308849	2-R41	SB315217	6-13				
ED224526	4-D10to13	ER308849	2-R62	SB315218	6-14				
ED224526	4-D22,23	ER308849	2-R74	SE311728	6-8				
ED237960	4-D17	ER308849	2-R94	SE315196	6-4				
ED311794	5-5	ER308849	2-R105	SE315200	6-20				
ED311856	5-1	ER308849	2-R151	SE315201	6-21x				
ED315361	5-2	ER308849	2-R186	SE315203	6-9				
ED315365	4-D1to3	ER308855	2-FL8,9	SE315204	6-10x				
ED315365	4-D5	ER315406	2-FL1,2	SE315210	6-15				
ED315366	4-D4	ER315407	2-FL3,4	SE315211	6-16x				
ED315367	4-D8,9	ER315408	2-FL5to7	SE315219	6-11				
ED315368	4-D14	ER315409	2-FL10	SK315206	6-30				
ED315372	4-D15	ER321192	2-R219	SK315207	6-31x				
ED315411	2-D11to13	ER322271	2-FL10	SK315208	6-32				
ED539976	4-D16	ES310839	5-13x	SK315209	6-33x				
ED557447	2-D2,3	ES315362	5-6	SP315179	5-17				
ED557447	2-D5	ES315393	2-SW2to4	SP315181	5-20x				
ED557447	2-D8to10	ES315393	5-58	SP315185	5-44				
ED557447	2-D16to41	ES315394	2-SW5	SP315188	5-53				
ED557447	3-D1to33	ES315394	5-59	SP315202	6-3				
ED557447	4-D6,7	ES315395	2-SW1	SP315225	5-19x				
ED557447	4-D18	ES315395	5-57	SP315226	5-18x				
ED698826	5-4	ES655806	5-11	SP315227	5-21x				
EE315248	5-38	ES656335	5-23	SZ315259	5-45				
EF300586	5-50x	ES665875	5-12x	TA314294	5-33				
EF305703	5-48x	ET219868	4-TR4,5	TA315369	3-IND1				
EF306124	5-46	ET293253	2-TR30	TA315369	5-52				
EF306125	5-47x	ET305221	2-TR3,4	ZG315193	6-7x				
EF315334	5-49x	ET305221	2-TR7,8	ZG315199	6-24x				
EF601942	5-51x	ET305221	2-TR10to14	ZG315220	6-19x				
EI213390	2-IC7,8	ET305221	2-TR16	ZS297641	5-43				
EI293185	2-IC5	ET305221	2-TR18	ZS308846	5-34				
EI299441	2-IC1	ET305221	2-TR21	ZS325495	4-5				
EI304657	3-IC8	ET305221	2-TR23to26	ZS325495	5-10				
EI304657	3-IC10,11	ET305221	3-TR5,6	ZS379350	5-3				

SECTION 3

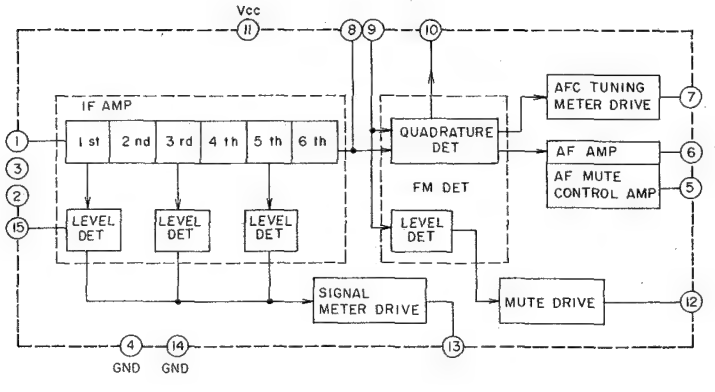
SCHEMATIC DIAGRAM

1. SCHEMATIC DIAGRAM OF ICs
2. AT-S08 NO. 3-1 1582022A CONNECTION DIAGRAM
3. AT-S08 NO. 3-2 1582023A TUNER SCHEMATIC DIAGRAM
4. AT-S08 NO. 3-3 1582024A SYNTHESIZER SCHEMATIC DIAGRAM

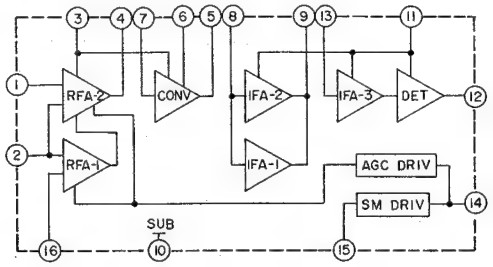
AT200A



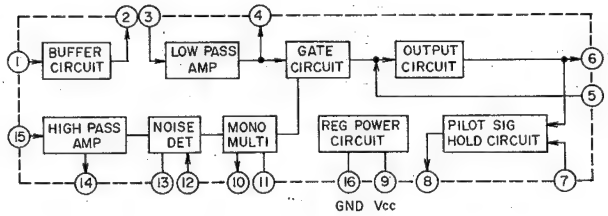
LA1230



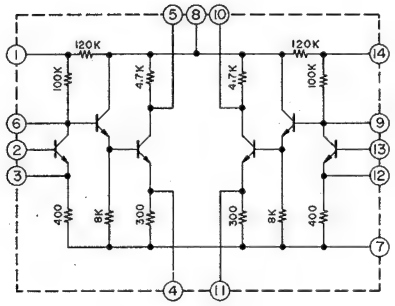
LA1240



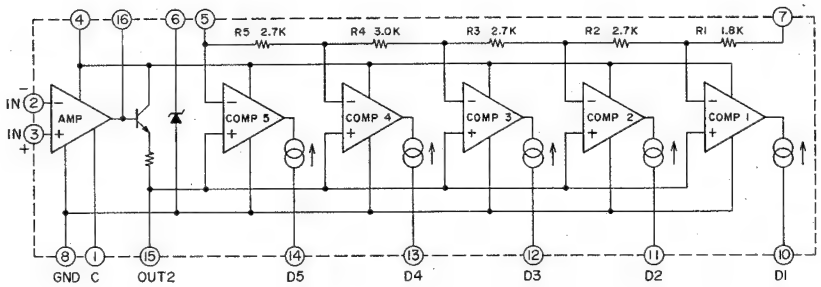
LA2100



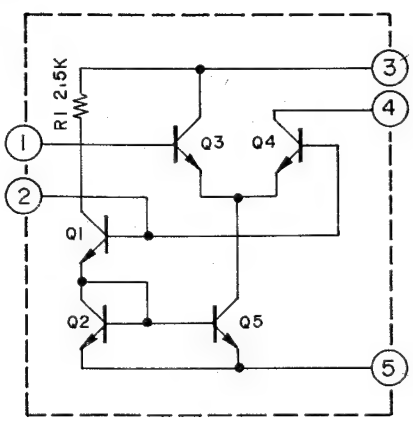
LA3122S



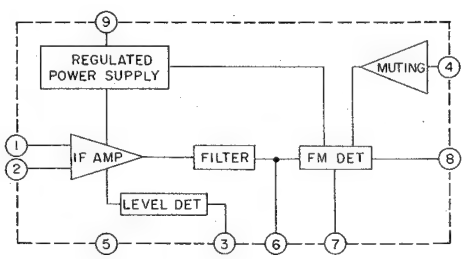
LB1405S



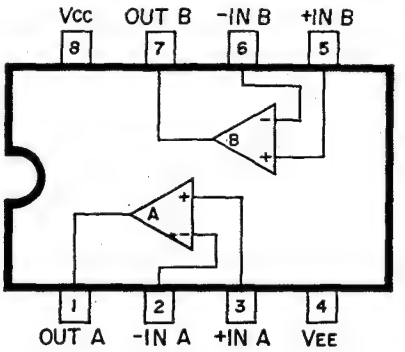
TA7060P



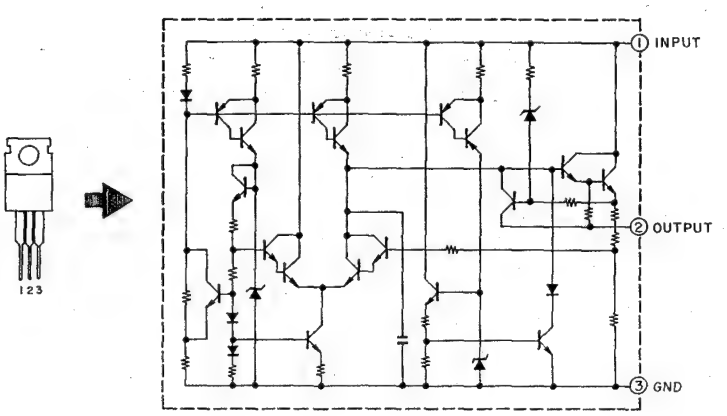
TA7303P



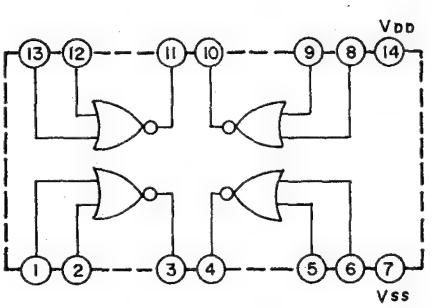
TA75458P



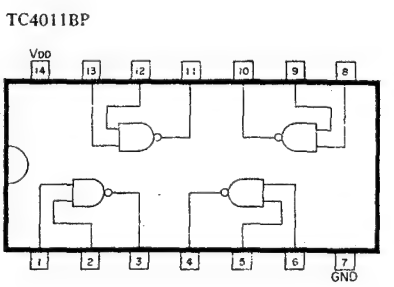
TA78005P



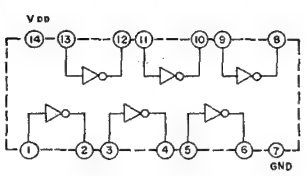
TC4001BP



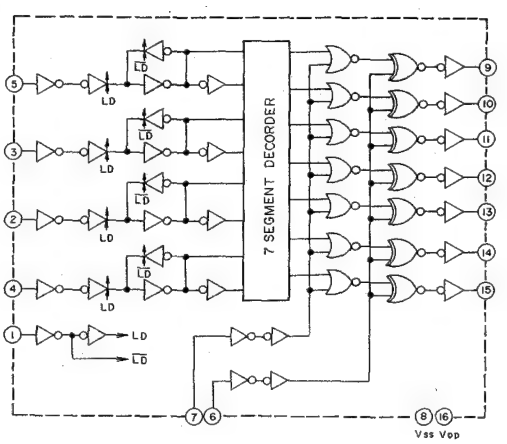
TC4011BP



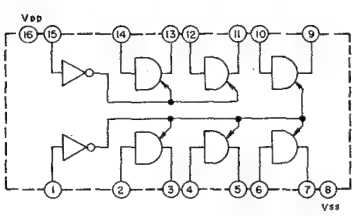
TC4069P



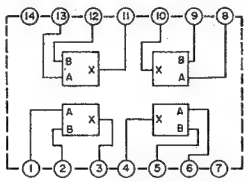
TC4543BP

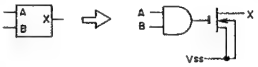


TC5012BP



TC5029BP

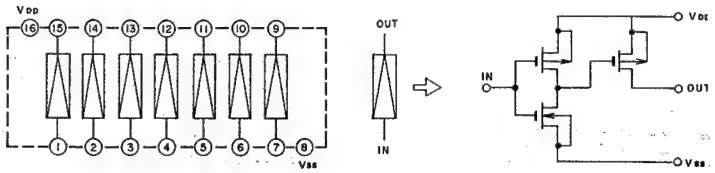




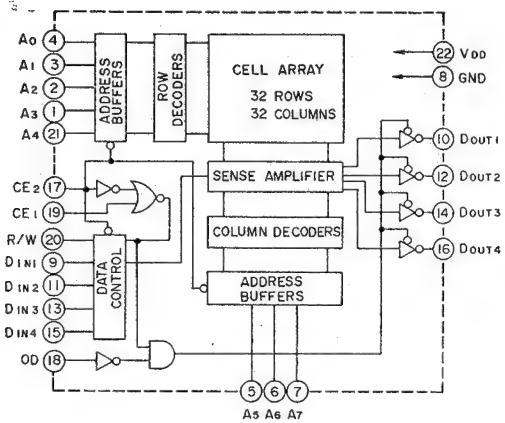
INPUTS		INPUT
A	B	X
L	L	HZ
H	L	HZ
L	H	HZ
H	H	L

HZ: HIGH IMPEDANCE

TC5066BP

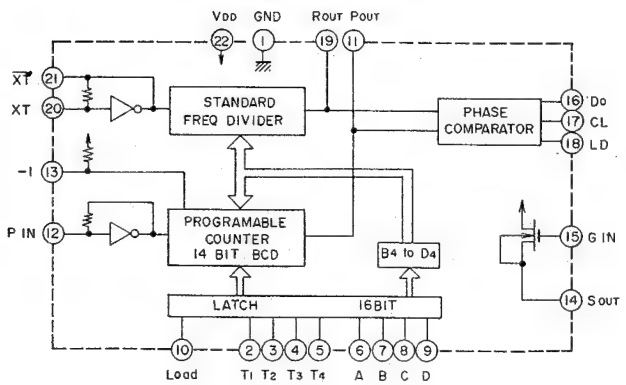


TC5501P

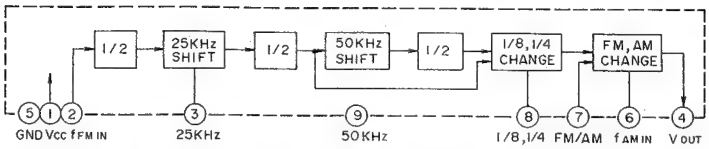


A0 to A7	ADDRESS INPUTS
R/W	READ/WRITE INPUT
$\overline{CE}_1$ CE	CHIP ENABLE
DIN1 to 4	DATA INPUT
DOUT1 to 4	DATA OUTPUT
VDD/GND	POWER SUPPLY
OD	OUTPUT DISABLE

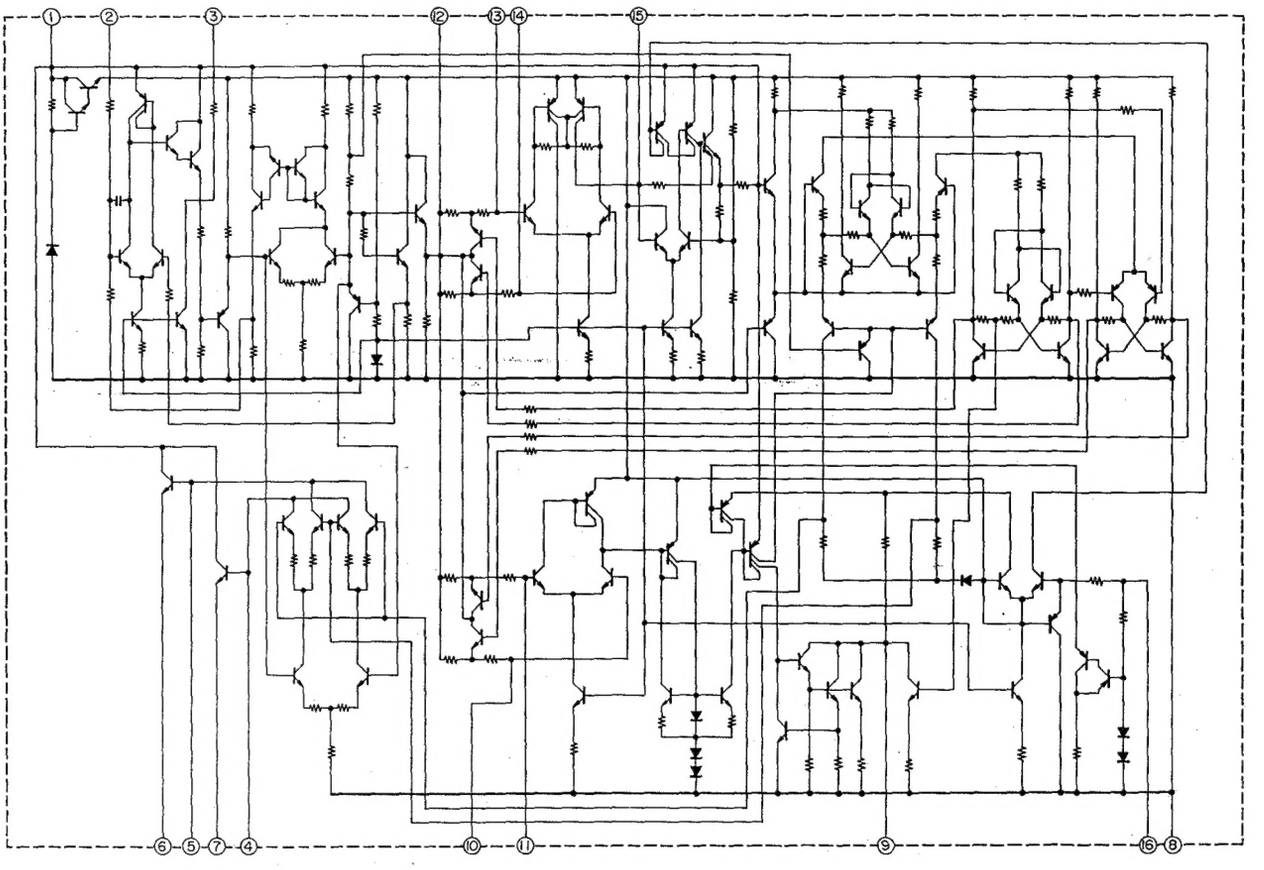
TC9123P-GR



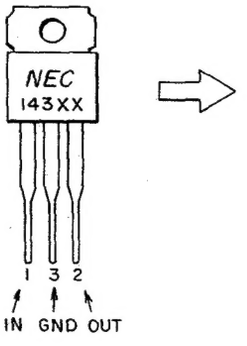
TD6102P

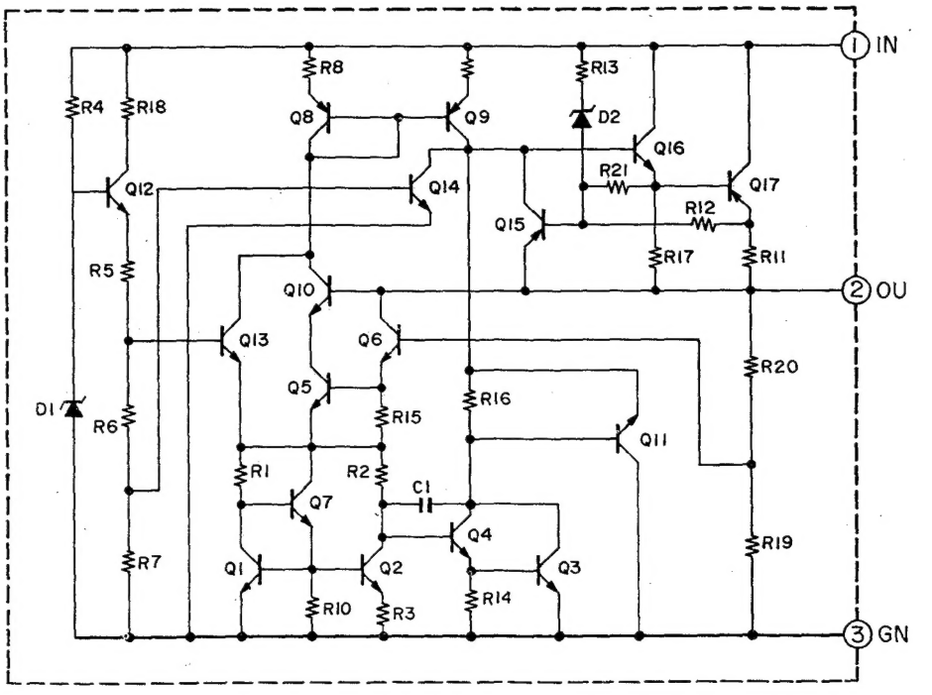


μPC1173C

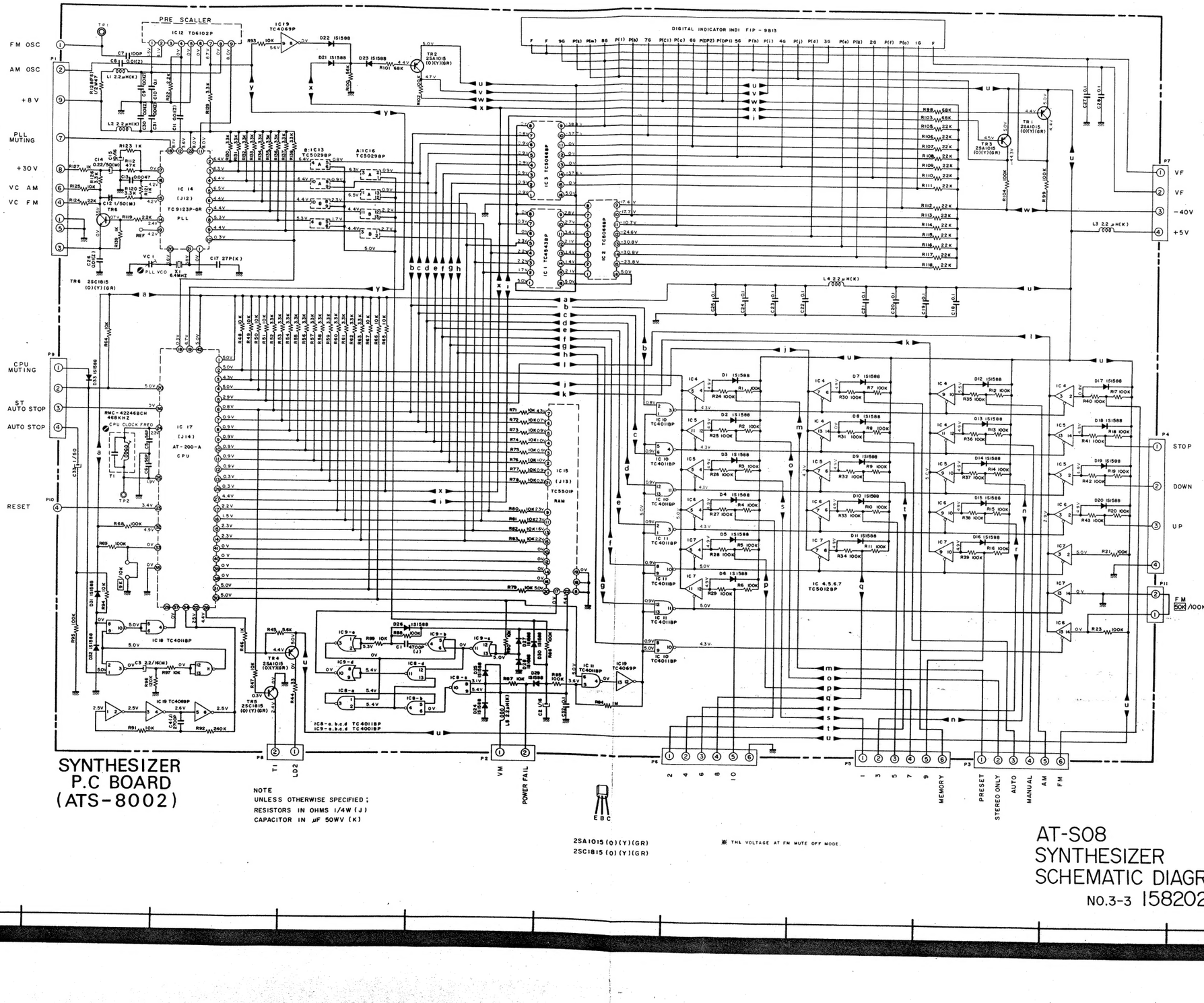


μPC14308H





AT-S08



SYNTHESIZER
P.C BOARD
(ATS-8002)

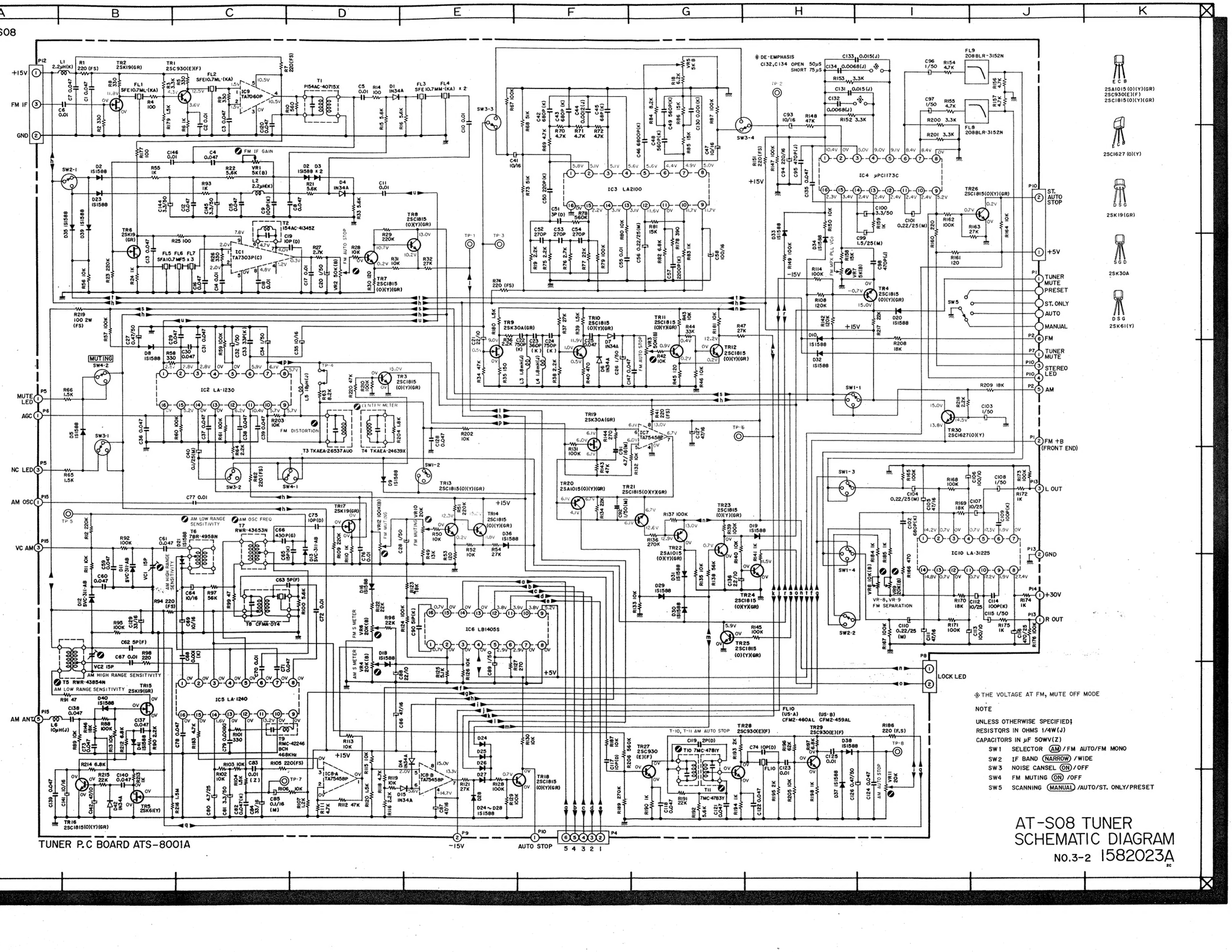
NOTE
UNLESS OTHERWISE SPECIFIED;
RESISTORS IN OHMS 1/4W (J)
CAPACITOR IN μF 50WV (K)

✱ THE VOLTAGE AT FM MUTE OFF MODE.

AT-S08
SYNTHESIZER
SCHEMATIC DIAGRAM
NO.3-3 1582024A
2C

0010360

AT-S08



※THE VOLTAGE AT FM, MUTE OFF MODE

NOTE

UNLESS OTHERWISE SPECIFIED;
RESISTORS IN OHMS 1/4W(J)
CAPACITORS IN μF 50WV(Z)

SW1 SELECTOR (AM) /FM AUTO/FM MONO
SW2 IF BAND (NARROW) /WIDE
SW3 NOISE CANSEL (ON) /OFF
SW4 FM MUTING (ON) /OFF
SW5 SCANNING (MANUAL) /AUTO/ST. ONLY/PRESET

AT-S08 TUNER SCHEMATIC DIAGRAM

NO.3-2 1582023A

001035F

AT-S08

FRONT END VFT-51EH-23

TUNER P.C BOARD ATS-800

SYNTHESIZER P.C BOARD ATS-8002

FILTER P.C BOARD
ATS-8038

VOLUME P.C BOARD
ATS-8037

POWER SUPPLY
P.C BOARD ATS-8052

POWER SUPPLY P.C BOARD
ATS-8051

POWER P.C BOARD STS-8003

POWER LED P.C BOARD
PM-1252

BATTERY P.C BOARD
ATS-8039

LED P.C BOARD
ATS-8001B

LED P.C BOARD(A) ATS-8036

SWITCH P.C BOARD
ATS-8005

SWITCH P.C BOARD(A)
ATS-8004

POWER SUPPLY P.C BOARD(U/T) ATS-8003
(AAL,CSA) ATS-8051
(CEE,UK) ATS-8052

2SA1015(O)(Y)(GR)
2SC1815(O)(Y)(GR)
2SC1906

2SC461(B)
2SC535(B)

2SD313(E)(F)

2SB560(E)(F)

3SK45(B)

NOTE
UNLESS OTHERWISE
SPECIFIED;
RESISTORS IN OHMS 1/4W(J)
CAPACITORS IN μF 50WV(Z)

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQU LES COMPOSANTS CRITIQUES DE SURETÉ. POUR MAINTENIR LE DEGRÉ DE SECURITÉ DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITÉ QUE PAR DES PIECES RECOMMANDÉES PAR LE FABRICANT

0010348

AT-S08
CONNECTION DIAGRAM
NO.3-1 1582022A
2C